ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. C, No. 3 — PAPER — Thursday, January 17, 1935

Government Wants 16,255,000 Pounds of Paper

Joint Congressional Printing Committee Will Open Bids February 25 for Three Months Supply of the Government Printing Office Beginning April 1—Schedule Embraces 184 Lots Which Is the Same Number of Lots Called for In the Preceding Schedule—Awards Will, It Is Expected, Be Made As Usual One Week Later

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 16—The Government Printing Office will ask for bids on February 25 for 16,255,000 pounds of paper which will be a three-months supply beginning April 1 next. Awards will be made one week later.

Report of Specifications Committee

Following is the report which the Committee on Specifications of the Joint Congressional Committee on Printing made last week to the Congressional committee:

The Committee on Paper Specifications respectfully submits its Twenty-eighth Report and the accompanying recommended schedule for paper for the public printing and binding and blank paper for the use of the Government departments and establishments in the District of Columbia for the term of three months, beginning April 1, 1935.

The Paper Specifications Committee decided that owing to the inability of the present contractors to supply papers having a pH of more than 4.5 and the impracticability of educating new contractors to do so in the three months' period covered by the schedule submitted herewith, the pH on certain lots should be temporarily reduced from 4.7 to 4.5.

Schedule Embraces 184 Lots

This schedule embraces 184 lots, being the same number called for in the preceding schedule. The quantity estimated for the term of three months beginning April 1, 1935, is approximately 16,255,000 pounds, as compared with 27,586,000 pounds for the previous contract period of six months.

Approximate Quantities Being Asked

Following are the approximate estimated quantities of paper on which bids are being asked:

1,500,000 pounds newsprint paper.
2,385,000 pounds machine-finish paper.
50,000 pounds antique book paper.
50,000 pounds lightweight machine-finish book paper.
100,000 pounds 50% rag machine-finish book paper.
10,000 pounds 75% rag laid antique book paper.
15,000 pounds 100% rag machine-finish book paper.
530,000 pounds supercalendered book paper.
15,000 pounds half-tone book paper.
105,000 pounds coated book paper.
10,000 pounds lithograph paper.
1,470,000 pounds mimeograph paper.
250,000 pounds U. S. M. O. safety writing paper.
5,000 pounds U. S. M. O. writing paper.
15,000 pounds safety writing paper.
2,187,500 pounds writing paper.
175,000 pounds map paper.
323,000 pounds manifold paper.
2,005,000 pounds bond paper.
297,000 pounds ledger paper.
296,000 pounds index paper.
2,500 pounds tissue paper.
95,000 pounds cover paper.
140,000 pounds manila paper.
273,000 pounds kraft paper.
65,000 pounds manila tag board.
430,000 pounds calendered tag board.
20,000 pounds manila cardboard.
45,000 sheets railroad board.
165,000 pounds bristol board.
2,500,000 pounds United States postal card bristol board.
1,000 pounds paraffin paper.
200,000 sheets gummed paper.
61,000 pounds blotting paper.
2,000 pounds stereotype molding paper.
10,000 pounds oiled manila tympan paper.
2,000 pounds plate-wiping paper.
2,000 pounds back-lining paper, for case making.
10,000 pounds high finish red sulphite.
10,000 sheets pressboard.
1,000 pounds news board.
410,000 pounds chip and strawboard.
10,000 pounds marble grained board.
36,000 pounds box board.
180,000 pounds binder's board.

In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

Morris W. Wilson Analyzes Newsprint Situation

President of Royal Bank of Canada Declares Stability of Dominion's Most Important Manufacturing Industry Depends Upon Reasonable Price Advance—Points Out Danger of Government Intervention for Purpose of Regulating Prices

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 14, 1935—The danger of Government intervention in the newsprint industry for the purpose of regulating the price of that commodity, failing a successful effort on the part of producers to stabilize the market for their product, was emphasized by Morris W. Wilson, president of the Royal Bank of Canada, in his first presidential address to shareholders of that institution last Thursday. Dealing with the newsprint situation, he said:

"Demand from the United States for newsprint has been strong, with the result that the output of the Canadian mills in 1934 was more than twenty-five per cent higher than in the previous year. In fact, it was within five per cent of the peak year of 1929. Prices, however, were even lower than in 1933 and, despite the most rigid economies, operations have continued on an unprofitable basis. Public opinion, and in some instances government intervention, has led to upward revision of the abnormally low wages paid to the woodsmen, but as yet there has been no corresponding gain in the price received for the product.

"The stability of this, our most important manufacturing industry, depends upon a reasonable advance in price, an advance which might well be brought about as the result of friendly cooperation between producer and consumer. Failing this, I fear we are faced with the possibility of government intervention and price regulation. This is a question which concerns the state, in view of its ownership of timber limits, and the state should not and will not continue to allow its natural resources to be dissipated in this wasteful manner. It is to the interest of both producer and consumer that a solution be found, and personally I hope that such state intervention may be avoided."

Problems Still Unsolved

Meanwhile, no solution appears to have been arrived at in regard to the fact that while most companies have agreed to put into effect a raise in price of $2.50 per ton, effective January 1, that still leaves the price in the case of certain contract at a level under $42.50 per ton, and in this connection the *Financial Post* says:

"There is growing belief among observers of the newsprint industry that the manufacturers may have overplayed their hand when they drew Premier Taschereau and others into the price controversy. Some say that if the Canadian companies had looked far enough ahead, it would have been apparent to them that it was only a matter of time before they could sell their newsprint at a price to give them a reasonable return on their investment.

"The newsprint manufacturers in days past had the 'pleasant' habit of telling the publishers what they would have to pay for their newsprint. There was little attempt to understand the problems of the industry. It was simply a sellers' market and the publisher had to pay what was demanded.

"With the collapse of the newsprint market in 1928-29, conditions were reversed and the publisher assumed the whip-hand. What had formerly been a sellers' market became a buyers' market. Prices were reduced officially and unofficially. Manufacturers had to have tonnage and the larger newsprint purchasers were in a position to dictate terms.

"Since the middle of 1933 there has been a gradual shift in the market and manufacturers are now within arm's reach of establishing a sellers' market.

"In the first eleven months of this year Canadian mills were within striking distance of the record output in 1929. This in itself is a remarkable state of affairs when it is considered that many other and equally basic industries are operating at a fraction of their 1929 level.

"If the demand for newsprint continues to grow, and there is reason for believing it will, it may be that before the end of this year the publishers will be going to the manufacturer rather than the manufacturer going to the publisher.

"Under those conditions the price of newsprint will quickly right itself. A higher price would be a certainty. The American publishers are well aware of this situation and for that reason the majority are more than willing to go half way in meeting the demands of the manufacturers for a reasonable price on newsprint paper. The entry of Quebec and other governmental authorities into the picture, however, has confused the situation and may prolong the return of normalcy to the industry when natural causes would have brought it about in the near future.

"Meanwhile the manufacturers have not only to contend with the problem of maintaining or bettering what little goodwill they have with their customers, but those with plants in Quebec must satisfy the demands of Premier Taschereau."

To Develop Forest Resources

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 16, 1935—Measures for maintaining and developing the nation's forest resources will be sought at this session of Congress which will probably have the support both of the Forest Service and of the industries dependent upon forests. Combined with proposals for increased fire prevention will be measures for encouraging the states to employ tax methods adaptable to forest practices. Special emphasis will be laid upon the development of practical plans for coordination between the federal government and the states in encouraging individuals to group their timber lands and harvest their crops in accordance with the methods of "sustained yield."

The forest industries under the provisions of their NRA code have undertaken on a national scale to employ proper forestry practices in their woods operation, and are desirous of having federal and state cooperation in making this program permanent and effective. Legislation to that end will undoubtedly be introduced.

Paper Service Meet at Holyoke

HOLYOKE, Mass., January 15, 1935—The January meeting of the New England Paper Service Association was held at The Tavern in this city last week. E. B. Whittemore of the Strathmore Paper Company being the main speaker. The next meeting will be held February 12.

DOWNINGTOWN

Breaks the Neck that BOTTLES Board Machine Production
Duo-Dehydrating Press Part
The speed of most board machines is governed by how fast the sheet can safely pass through the primary, squeeze or monkey press roll section without picking, checking or blowing... Removal of this "neck of the bottle" and installing Downingtown Duo-Dehydration, i. e., combination of Extractor and Suction Rolls, in the same space, insures safe running at any speed within the capacity of your vats and dryers... The Downingtown Manufacturing Company, Downingtown, Pa.
Duo-Dehydration is covered by patents granted and applied for.

No Board Machine is Modern *Without* DUO-DEHYDRATION

Sutherland Paper Co. Buys Fiber Can Plant

Consummation of Purchase Provides Converting Outlet for Part of Its Box Board Production —Plant Located Within Metropolitan Area of Milwaukee, Ensuring Extensive Carton Market—Former President L. C. Brooks Engaged as Manager

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., Janary 14, 1935—Purchase of the Wisconsin National Fibre Can Company, of Cudahy, Wis., by the Sutherland Paper Company of Kalamazoo, Mich., was consummated last week, and the latter concern now has a converting outlet for part of its box board production. Arrangements are now being made to place the Cudahy plant in shape for operations. The location is within the metropolitan area of Milwaukee, where an extensive local carton market exists.

The Wisconsin National Fibre Can Company has been in receivership since February 28, 1934. Failing of a reorganization, A. C. Schmidt, receiver, was ordered by the court to dispose of the machinery and equipment at auction. The Sutherland company bid it in at $37,000, and the sale to them was approved by Judge Otto H. Breidenbach. Additional assets consisting of stock and manufactured articles also were offered at auction. Stockholders are expected to realize about a fifty per cent recovery.

New owners of the plant will continue to make paper cans from stock manufactured at its Kalamazoo mills. L. C. Brooks, formerly president of the Wisconsin National Fibre Can Company, has signed a contract to manage the Cudahy plant.

Huge Storage Reservoir Planned

Further steps to erect two mammoth storage reservoirs and additional power dams serving paper mills of the Wisconsin river valley were made at a meeting last week of stockholders of Wisconsin Valley Improvement Company at Wausau, Wis. This concern is a holding company owned by various mills for the regulation and control of water power supply. The nature of the plans made was withheld for the time being.

The project includes erection of a large storage reservoir on the Wisconsin river near Rhinelander, Wis., and two more on the Big and Little Eau Pleine rivers, tributaries of the Wisconsin, north of Wausau. The amount of water they will impound is expected to be sufficient to take care of all low water periods. Authority has been given by the Wisconsin legislature to proceed with the project. The Consolidated Water Power and Paper Company also announced sometime ago its intention of erecting another large power dam on the Eau Pleine. The entire project will involve costs running into the million figures.

John E. Alexander, president of the Nekoosa-Edwards Paper Company, was elected to the board of directors of the improvement company to fill the vacancy caused by the death of his father, Lewis M. Alexander.

Tolls were recently assessed against each patron of the Wisconsin Valley Improvement Company water power facilities, and included the following, for the last six months of 1934: Rhinelander Paper Company, $1,436; Tomahawk Kraft Paper Company, $2,954; Grandfather Falls Paper Company, $3,326; Wausau Paper Mills Company, $2,527; Marathon Paper Mills Company, $2,908; Mosinee Paper Mills Company, $3,184; Consolidated Water Power and Paper Company, Stevens Point dam, $2,456; Biron dam, $3,331; Wisconsin Rapids dam, $4,476; Wisconsin River Paper and Pulp Company, $3,015; Whiting-Plover Paper Company, $158; Nekoosa-Edwards Paper Company, Centralia dam, $1,958; Port Edwards dam, $2,391, and Nekoosa dam, $3,168.

Paper Mill Officials Elected Bank Directors

Paper mills are well represented in the annual elections of banks being held since the first of the year. The directorate of the First National Bank, Appleton, Wis., includes F. J. Sensenbrenner, president of the Kimberly-Clark Corporation; Charles S. Boyd, president, Appleton Coated Paper Company; G. E. Buchanan, secretary of Appleton Wire Works; C. B. Clark, president of Riverside Paper Corporation; F. J. Harwood, president of Appleton Woolen Mills; and William C. Wing, president of Fox River Paper Company.

Among those elected by the First National Bank, Neenah, Wis., are: C. A. Babcock, president of the Wisconsin River Paper and Pulp Company; J. N. Bergstrom, president, Bergstrom Paper Company; D. K. Brown, first vice president, Neenah Paper Company; Ernst Mahler, vice president Kimberly-Clark Corporation, and F. J. Sensenbrenner and C. B. Clark.

Directors of the National Manufacturers' Bank, Neenah, Wis., include: A. C. Gilbert, president, Gilbert Paper Company; and S. F. Shattuck, vice president, Kimberly-Clark Corporation.

The First National Bank, Menasha, Wis., re-elected on its board, F. B. Whiting, president, George A. Whiting Paper Company; Hugh Strange, secretary-treasurer, John Strange Paper Company; R. M. Sensenbrenner, vice president, George A. Whiting Paper Company; John Stevens, Jr., vice president, Marathon Paper Mills Company (Menasha Products Div.); Carlton R. Smith, of Menasha Wooden Ware Corporation; and George Banta, Jr., of George Banta Publishing Company.

History of Paper Discussed

Talks on the history of the paper industry are popular with Rotary clubs. R. A. Schmid, of the manufacturing staff of Kimberly-Clark Corporation, Neenah, Wis., spoke on this subject before the Rotary club at Oshkosh, Wis. last week. He illustrated his talk with lantern slides.

A similar address was made before the Rotary club at Appleton, Wis., last week by Dr. John H. Graff, of the research staff of the Institute of Paper Chemistry. He remarked that only two hours and twenty-five minutes need be consumed between the time the logs from which paper is made are cut in the woods and the time the printed newspaper appears on the streets.

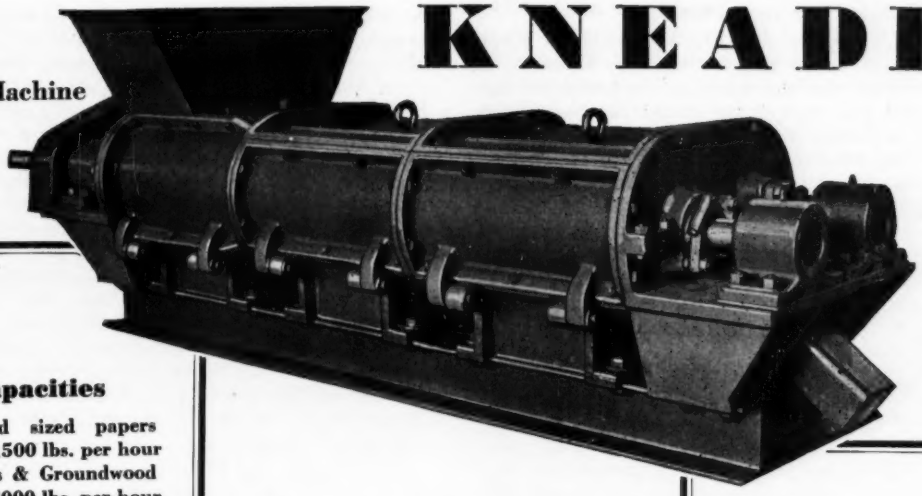
Holyoke Wire Cloth Co. Expands

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 15, 1935—A new loom for weaving Fourdrinier wires has been ordered by the Holyoke Wire Cloth Company from Germany and installation will be completed in a few weeks. This is the third machine that the company has acquired in the past few years. The new machine permits weaving of wires up to 166 inches in width.

ANNOUNCING THE NEW Valley - Voith KNEADER

No. 4 Machine



Capacities

On hard sized papers
1200 to 1500 lbs. per hour
On News & Groundwood
1500 to 2000 lbs. per hour

Comparison of Mullen Tests

Voith Kneader No. 4
2 to 3% variation
Broke Beaters
7 to 8% variation

Comparison of Power Tests

1 Voith Kneader No. 4
60 Horsepower
2 Broke Beaters
100 Horsepower

One Voith Kneader is equal in capacity to two Broke Beaters of the size usually used.

We also build a No. 3 machine in which the last section is omitted. This machine operates at about 40 H.P. with capacity of 25 to 30 tons of broke or sheet pulp. Will give only 90% disintegration. The No. 4 machine gives 100% disintegration.

THE Valley-Voith Kneader is a machine for handling broke, sheet or lap pulp in place of the Broke Beater. It shows a considerable saving in horsepower, labor and space and maintains a higher Mullen test uniformity. One mill writes:

> **"The promise on this machine was 1000 lbs. per hour of hard size broke with a 50 H.P. capacity motor. In our tests, as high as 1500 lbs. per hour of this broke were handled with 53.6 H.P. and one man feeding."**

For complete information write to the Valley Iron Works Co., Appleton, Wis.

Other Valley Equipment

Beaters

Voith Stock Inlets

Roll Wrapping Machine

Pumps

Deckers

Screw Presses

Laboratory Equipment

Plug Valves

Flat and Rotary Screens

Jordans

Automatic Felt Guide

Hypoid Gear Drives

VALLEY IRON WORKS COMPANY

Plant: Appleton, Wisconsin

New York Office: 350 Madison Ave.

Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, Canada

Ontario Plans Action to Prevent Timber Waste

Minister of Land and Forests Peter Heenan Declares Paper Manufacturers Agree That Reallocation of Limits Is Desirable—Some Pulpwood Tracts May Be Reduced and Cancellation of Some Leases Is Considered Inevitable

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., January 14, 1935—The Hon. Peter Heenan, Minister of Lands and Forests for Ontario, is planning action to prevent the waste of the timber of the province. Several pulp and paper companies have large areas in which they have had both the pulpwood cutting rights and, in many cases, authority to harvest the timber. Mr. Heenan said that certain companies have neglected their lumbering operations, with the result that the timber has matured and gone to rot. He added that the provincial government must get control of these areas, which have been held out of production, and intimated that either the paper companies would have to harvest the timber, or the concession, in the way of limits, would be given to others. Mr. Heenan explained that readjustment would be effected with the redistribution of the pulpwood tracts, which he plans. It was evident that many companies had larger berths than they required and it was clear, too, that the location of the limits was not economic in several cases. Mr. Heenan remarked that he had been discussing recently the proposed readjustment with paper companies and they had agreed that some reallocation of limits was desirable. Some limits will be reduced and cancellation of some leases is considered inevitable.

Safety Meeting Arranged

D. B. Chant, Toronto, secretary-engineer of the Ontario Pulp and Paper Makers Safety Association, states that the annual meeting will be held early in March and that the awards for safety showing will then be made in Class "A" and "B" mills. Great interest has been taken by various plants in first-aid work and several mills have entered teams of four representatives in the annual contest. These teams are now being examined in skill, knowledge, efficiency, etc., but the result will not be known for some time.

Unsold Christmas Trees Burned

Thousands of unsold Christmas trees have been burned on vacant lots in Toronto and other cities. The Ontario section of Canadian forests interests are, however, not alarmed. Although many truck loads of young spruce and balsam trees have been destroyed, it is averred by the forestry department that this condition is not at all serious and will readjust itself to supply and demand. With a proper rotation it is believed that the Christmas tree business will develop into a source of income for the farmer and the settler but a better handling of the stock is suggested by the provincial authorities.

Proposed Labor Legislation

A large delegation representing the publishers, the printing and the allied trades waited upon the Hon. Arthur Roebuck, Attorney-General of Ontario, this week in reference to the proposed labor legislation affecting the mechanical departments of these organizations. All persons interested in paper consumption were present from every part of the province. Views were expressed on both sides but no definite arrangements has been arrived at.

News of the Trade

A purchase of fifty thousand cords of pulpwood for the Thunder Bay paper mill at Port Arthur, Ont., is now under way and will assure sufficient stock to keep the plant in operation for a year. Mayor Cox, of Port Arthur, recently had a conference with G. T. Clarkson, Toronto, receiver for the Abitibi Power and Paper Company, as well as with the Hon. Peter Heenan, Minister of Lands and Forests for Ontario. Some time ago there was a rumored threat of an increase in the price of wood against the company but this has not materialized and Mr. Clarkson feels certain that he can now purchase a year's supply at prices consistent with present conditions in the news print business.

G. T. Clarkson, of Toronto, receiver for the Abitibi Power and Paper Company, in a recent communication to R. B. Pow, Mayor of Fort William, Ont., said that, with all the difficulties and troubles in the newsprint line, there seemed to be more brightness on the horizon than there was a year ago. All hoped that matters would sort themselves out so that it would be possible to open more mills, with the result that all the efficient plants of the company could be put in operation.

W. B. Powell was lately appointed president of Appleford Paper Products, Ltd., Hamilton, Ont. It is now stated that the financial control of this company is in the hands of Mr. Powell. Walter S. Burrill has been appointed vice president of the concern, which reports that the outlook for the coming year are promising.

The common and preferred stocks of the Abitibi Power and Paper Company as well as the bonds, have been active in trading on the Toronto stock exchange, with prices advancing and some large blocks changing hands. Numerous rumors have been afloat regarding the future of the company. Neither G. T. Clarkson, receiver, nor L. R. Wilson, vice president of the organization, is able to throw any light on the basis of these stories, which are to the effect that an English group is on the point of acquiring the company, terminating the receivership, and engaging in production on a new operating plan. Another rumor is to the effect that cellophane and perhaps other chemical products derived from wood pulp are to be turned out, that two or more of the idle mills of the organization will be reopened and that the Ontario government is expected soon to announce completion of an arrangement for the renewed activity of the company in Northern Ontario.

One of the paper machines of the Abitibi Power and Paper Company, at Iroquois Falls, Ont., was damaged by fire lately to the extent of several thousand dollars. The blaze was confined to No. 4 machine, which is one of the smaller ones. Owing to the dense smoke and steam, firemen had considerable trouble in extinguishing the flames. Production will not be affected, as three other machines, which were shut down last week, after a capacity run in December, will be available, and one of them was started immediately.

It is not likely that the Fort William paper mill will be reopened in the near future. Joseph E. Crawford, who is the local member of the Ontario Legislature, has received word from Toronto that something in this direction may be done a little later but that to reopen the mill at present would require a large amount of money to put the plant in order which circumstances in the newsprint trade do not justify today.

Philadelphia Paper Market Outlook Brighter

While Demand for Various Grades of Paper Was Only Moderately Active During Past Week, Steady Progress Is Anticipated for Next Two Months, At Least—Leading Paper Merchant Declares 1934 Business Was Better Than Anticipated

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 14, 1935—There is a much better atmosphere in paper circles than there was a year ago, and although this past week has levelled off slightly, the opinion prevails that 1935 will at least be a year of upbuilding, with less emphasis on reform and more on recovery, with business and government pulling together more harmoniously than was the case a year ago. One of the leading paper merchants states that as business in the paper trade looks back on the figures of 1934, the picture is far brighter than at one time it was thought it could be, and if such progress were possible under the uncertainties of 1934, we may look forward hopefully to the more definite trends of 1935. And it would seem as if, with this clearer vision, we should see more steady progress for the next two months at least, for not only is business sentiment definitely better but there is a definite buying movement that has been brought about by compromise between spending and saving, between code provisions, between the prices that consumers want and the prices that producers would like to get, and in the final analysis, business necessity.

Association Activities

A full attendance was on hand at the annual meeting of the Paper Trade Association of Philadelphia, held on Wednesday, January 9, in the Betsy Ross Room of the Ben. Franklin Hotel. Luncheon was served promptly at 12 o'clock, after which the election of the Board of Governors took place, resulting as follows: Norbert A. Considine, president, Paper House of Pennsylvania; William S. Wilcox, president, Wilcox-Walter-Furlong Paper Company; Ormond Freile, vice-president in charge of sales, Paper Merchants, Inc.; William A. Hentz, manager of sales, Thos. W. Price Company; Edward W. Hartung, treasurer, A. Hartung & Co.; LeRoy S. Bishop, secretary and treasurer, Raymond & McNutt Company; T. H. B. Smythe, president, The J. L. N. Smythe Company; F. A. O'Neill, Sr., president, Paper Manufacturers Company, Inc.; Nathaniel Saxe, owner, Saxe Paper Company; Edward A. Keller, vice-president and general manager, Garrett-Buchanan Company; George W. Ward, president, D. L. Ward Company, and Simon Walter, president, S. Walter, Inc., Lehigh Valley Paper House and Andrews Paper House of York. Mrs. Doris E. Lewis was re-elected corresponding secretary. Immediately following the adjournment of the annual meeting, the Board of Governors met and elected the following to serve as officers of the Paper Trade Association of Philadelphia for the same period: Norbert A. Considine, president; Ormond Freile, 1st vice-president; George W. Ward, 2nd vice-president; Simon Walter, 3rd vice-president; Edward A. Keller, secretary, and LeRoy S. Bishop, treasurer. An out-of-town guest who graced the occasion with his presence was Harry G. Keffer, of Johnston, Keffer & Trout, 17 South Second street, Harrisburg.

At a meeting of the Board of Directors of the Philadelphia Paper and Cordage Association, Inc., held during the week, the following committee appointments were made: Entertainment; E. K. Lay, of E. K. Lay Company, chairman; Amos Coath, Ralph Matthias and Raymond F. Armstrong; Membership: Willard Parkes, chairman, George K. Hooper, John J. Shinners, Frederick I. Brower; Finance Committee: Leslie C. Bartlett, chairman, James Andrews and Frederick I. Brower. The first meeting of the association for 1935 will be held on Friday, January 18, at the Adelphia Hotel. President Harry S. Platt will discuss new plans for the benefit of the association and other routine matters will be disposed of.

Owing to the illness of Chairman William S. Wilcox, the meeting of the Sub-Committee for the Philadelphia Trading Area scheduled for this week, was postponed. Mr. Wilcox suffered an attack of tonsilitis but at this writing he is feeling much better and hopes to arrange the meeting of his committee for sometime during the coming week.

News of the Trade

Garrett-Buchanan Company has taken over the C. W. Beers & Co. business, located at 7 and 9 East Lombard street, Baltimore, Md. The Beers company has handled many fine grades of paper, among them Crane's linen and Brown's ledger. The Garrett-Buchanan Company has taken over the lease for the entire building in which Beers & Co. are located, and are putting in their own regular stock of diversified papers for printers' use. The business will continue to be operated under the present name. Mr. Beers will be on hand to greet his customers and will continue to give the business his attention. H. W. Rowe, Garrett-Buchanan Company's representative in Baltimore, has been appointed manager of the entire business.

The Philadelphia Foreman's Club, consisting of superintendents, plant managers, foremen and personnel managers from forty-five different industries, held its second annual exhibition in the Y. M. C. A. Building, Germantown, on January 9, 10 and 11. Paul A. Dillman, of DuPont Cellophane Company, 1616 Walnut street, gave a very interesting talk on Cellophane products, which included a historical sketch of its discovery, its processes of manufacture, service rendered to users and present day merchandise.

Included in the membership of this Club besides the DuPont Company, are the Container Corporation, of Manayunk, and the T. M. Royal Bag Company, 10th & Grange streets. L. W. Moseley, of the Exide Electric Storage Battery Company, is president, and H. J. Hublitz is house manager and associate secretary of the Club, which holds regular meetings at the Y. M. C. A. Building on the first Wednesday of each month.

Announcement is made by Joseph H. Miller, vice-president of the Fine Paper Department of Garrett-Buchanan Company, that they have added Trojan Bond to their already very extensive lines of fine papers. Trojan Bond is a product of the American Writing Paper Company, and offers a recognizable quality in white and eight distinctive colors, namely; goldenrod, green, ivory, gray, canary, pink, buff and blue.

The Hooper Paper and Twine Company, with offices at 105 Church street, has been appointed distributor for Appraisal Ledger, made by the Hampshire Paper Company of South Hadley Falls, Mass. Appraisal Ledger is a 25 per cent rag ledger and is suited to the needs of those desiring an ultra fine ledger paper.

Frederick I. Brower, mill representative for Atlanta Gummed Paper Corporation, Brooklyn, N. Y., with offices formerly at 910 Chestnut street, is now located at Room 641 Drexel Building.

Frederic S. Balch, of the Schuylkill Paper Company, 256 North Third street, is confined to his home with an attack of grippe.

Paper Men Attend Price Provisions Hearing

Representative Members of the Paper and Pulp Industry to the Number of Several Hundred at Washington Last Week Hear S. L. Willson, Chairman of the Paper Industry Authority Vigorously Defend the Price Policy Being Carried Out in the Paper Industry— A. W. Leslie Speaks for the Paper Distributing Trade

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 16, 1935—Several hundred representatives of industry attended the NRA public hearing on price provisions in codes last week. The various branches of the paper industry were well represented.

From the standpoint of the industry, S. L. Willson, chairman of the Paper Industry Code Authority, made the most important statement. He said:

Statement of S. L. Willson

"I appear for the paper and pulp industry of the United States. I wish to outline conditions in our industry and the remedial steps that we have undertaken in our Code administration. In addition, I wish to file a more extended statement. Also, I wish to submit a statement from the United States pulp producers in respect to certain phases of the open price filing system. I respectfully request that both of these documents be incorporated in the proceedings of this hearing.

As president of the American Paper and Pulp Association, a federation of 24 divisional associations, I have had an opportunity to observe intimately identical price filing provisions under various conditions of personnel, philosophies, and industrial conditions. I wish to get before the NRA certain fundamental characteristics of our Code, and especially of their administration, that are successful.

The Code of Fair Competition for the Paper and Pulp Industry provides for a plan of price filing that does not seem to be wholly popular with those seated on this platform, but which has been ably defended. It contains uniform costing principles, cost basis for price filing, waiting periods, power of suspension after investigation, and power to suspend the open price filing procedure wholly or in part for any product or products. It does not grant power to fix prices, to control production or to allocate tonnage. Although we elected open price filing, we believe these and other preventative methods may be necessary in our industry or in other industries under certain conditions.

The twenty-four divisional associations that make up the American Paper and Pulp Association—to give you a glimpse of our industrial picture—are composed of large and small operators, mass and diversified producers and self-contained and converting mills. Modern and old equipment operate side by side. Our costs are largely made up of material, machine and overhead costs; labor costs form but a fifth of the total. Our investment, at the moment, is nearly twice our annual sales. Since paper use is associated with the use of other commodities and services, demand is relatively fixed by general business conditions, except as new uses are developed. Paper is probably the greatest substituting material in modern life; the industry, as it can accumulate the necessary resources for research and sale promotion, is expanding into every field of trade, into shoes, for instance, into containers, into sanitary products and a host of other fields.

The results of Code regulation, after a year's trial period, are excellent in twenty of our twenty-four divisions. Yet each with a different but equally fine personnel, with different products and conditions of sale, went at the job of administration in different fashions. Now administration procedure is tending toward a standardized form built up from the twenty-four experiences, codified in a liaison through the Industry Code Authority.

Testing the Open Price Plan

Our industry has constituted an excellent laboratory for testing the open price plan. We have found that in twenty of our divisions, conditions meet the requirements outlined by Mr. Henderson for successful operation of such a plan. In four others different conditions prevailed and the plan was not successful. In these divisions the plan was abandoned after trial. We see no reason why industries which have been able to stabilize their price structure under an open price plan should now be deprived of that privilege any more than any of our twenty divisions should be deprived of the plan because it proved ineffective in four.

A diminishing demand, synchronized with waning industrial activity and aggravated by disastrous international price-cutting in wood pulp, our principal fibrous material, pitched our industry into a mad scramble for orders during the depression, that brought prices down to lower levels than in most industries. Everyone suffered. Now we are coming back slowly; under our Code we have employed more workers than ever before, and we are rapidly raising our wages to pre-depression levels. We have stopped devastation, but we have not been able to rebuild our financial resources. Our greatly increased labor cost per ton of production, more than 15 per cent above comparable costs in 1929, have constituted the first charge against the benefits of NRA.

Our experiences during the disastrous years and under Code regulation have impressed upon us the following facts:

1. That each company's prices must be known by all competitors.
2. That prices filed in relation to costs as a common base, although tending to gravitate toward the cost of the lowest cost producer, make filing procedure simple and compliance almost automatic.
3. That each company must apply uniform accounting principles for costing purposes regardless of its individual accounting system, to prevent unfair exclusions and distributions.
4. That waiting periods are necessary for each competitor to meet price changes and for preventing abuses by filing for a single order and withdrawing such filing when the order is taken.
5. That power to suspend immediately price filing when selling below scheduled prices develops is essential to administration.

These requirements are covered by provisions in our Code. They have proved their value and we know that if they are eliminated by sweeping executive order, each company must protect its position immediately by buying recklessly enough orders to fill its production schedule.

The paper and pulp industry still faces emergency conditions. Production volume is low and price cutting to obtain a greater share of the restricted demand could not be avoided if the cost basis of price filing were eliminated.

Not a Solution to Price Demoralization

The industry has examined the provisions of so-called Office Memorandum No. 228 and we have not found in it any solution to price demoralization. It contains no preventive provisions; it treats of cost finding merely in passing; its price suspending provisions place in the NRA a responsibility to determine what is a destructive price which in effect gives the NRA a measure of control over the code's effectiveness that the NRA has not yet seemed capable of handling. Our approved pricing provisions have been effective; our values are too great and our financial condition too weak to permit playing with trial balloons.

Prices have risen, to be sure. They increased an average of 18 per cent from depression levels when purchasers anticipating price increases filled up their stocks after the enactment of the Act. Since the open price plan went into effect, however, prices have tended downward. In 157 cases of price changes in important grades, 126 were decreases and 31 were increases. Surely this does not indicate price rigidity!

The history of paper prices over a long period shows that they have moved downward in relation to prices of other commodities as invention, new materials and mass production methods have reduced costs. Consumption has moved upward as constantly, except in certain relatively short periods of recession. Present prices bear out this age-old relationship. The paper price index is as much below the index of comparable prices of other finished products today as it was in the depression. Prices have not directly affected our production level during code regulation.

In this connection I want to refer to the effect of Executive Order No. 6767. The paper industry cannot yet understand how an approved code can be so modified, without hearing or even without notification, as to legal violations of its provisions which contemplate the elimination of destructive prices; which permits the sale of paper to public agencies at prices below cost; and which allows preferential treatment in one case while denying it in others. Is not discrimination in prices especially forbidden in the Anti-Trust laws? Furthermore, there is much doubt as to the legality of such an order. We do not deny the right to make the continued approval of the Code contingent upon the condition that all bidders on public supplies shall have the right to bid up to 15 per cent under their filed prices; under such an order a hearing would result and either the condition would be accepted or the entire Code would be voided.

No Power to Amend Code Without Consent

In view of this disastrous experience, our industry desires to state that it does not recognize the power of the National Industrial Recovery Board to amend or to alter our code without our consent.

In the four divisions in which the open price plan was suspended, prices broke down. The suspension was made because of these price breaks which were the direct effect of the Executive Order No. 6767. In all cases prices collapsed, dropping almost immediately to lower levels than had previously existed during the depression. In spite of this, however, volume of sales did not increase until the seasonal upswing in the Fall of 1934, and then only to the extent that all grades of paper increased.

With the exception of a few cases each member of the industry has filed with his respective Code agency prices for all products covered by the paper and pulp code. Practically no difficulty has been experienced in obtaining voluntary compliance with the filing procedure.

Price schedules have been filed by 589 companies upon an aggregate of at least one thousand product items. Handling such a volume has not proven impracticable, and the notification of all competitors of price changes has been prompt. Furthermore, enforcement has not involved NRA compliance procedure, nor have the administrative agencies encountered unsurmountable difficulties.

Compliance Has Been General

Compliance with the industry's preliminary rules for determining cost has been general. In eight cases of price changes, challenges were made by competitors. After investigation adjustments were made in each case in accordance with the findings. The enforcement of costing rules through challenge by competitors has proven simple in operation and entirely workable. Compliance has been of a high order.

It is claimed that individual cost as a price bottom is unenforceable at law and, therefore, unworkable. The best answer which I can make to this contention is to say that in the paper industry it does work.

Except as otherwise ordered by approval of the Industry Code Authority, price filings become effective twenty-four hours after receipt. In some divisions such a short waiting period proved inadequate to notify competitors without excessive expense. The industry is widely distributed geographically and the marketing of its products is largely upon a national basis; to protect their position every competitor must be informed of price changes sufficiently in advance so that each may, if he so desires, meet price changes on their effective date. To permit this eight of the twenty-four divisions extended the elapsed time between filing and the effective date to five days, with the approval of the Industry Code Authority.

It is apparent from a study of the Code provisions that uniform prices would result when price information is so widely distributed as it is under the open price filing plan. Competitors file to meet the lowest filing on record for a specific and comparable competitive grade, in most cases. That such uniformity is not indicative of price fixing is indicated in the opinion of the United States Supreme Court in the Cement Case. As a matter of fact, uniform prices are desired by most purchasing groups, despite action by individual purchasers, for under them everyone is insured that no competing purchaser has an advantage. This does not, however, prevent individual purchasers from trying to obtain an edge.

The coincidence of uniform prices has been mentioned as possibly the result of thought transmission. The increase of 18 per cent in paper prices occurred prior to the approval of the Code. Whether this was accomplished by thought transmission, mental telepathy, or by the sprouting of a grain of common-sense business principle after the devastation of a jungle competition, we leave to the judgment of those whose experience qualifies them to decide.

Selling below filed prices has occurred in some cases. But only four cases with documentary evidence have been submitted to the NRA for action. Punitive action has been considered necessary by some Code agencies. But the knowledge that price filing will be withdrawn if noncompliance with price schedules becomes general, is a powerful curb to chiseling. I have cited four cases where such action was taken. The resultant urge by price war was punishment enough; conditions are now improving in each case.

Big Majority for Retention of Plan

A mail vote under date of January 2, 1935, of the members of the industry as to the retention of the open price

filing plan and of the cost basis for filing prices, showed a large favorable majority. Nearly one-half of the negative vote was from members of one divisional association in which the open price filing plan had broken down as a result of Executive Order 6767.

This survey of the industry's attitude is evidence that the open price filing provisions have not created hardships for any class of mills. It shows particularly that small enterprises have not been oppressed. The high favorable vote which exceeded 85 per cent in the divisional associations in which price filing is now in effect, explains the lack of difficulty in the industry with compliance. The experiences of the industry during the depression, still fresh in memory, are stark reminders of the consequences of unrestricted price cutting. This has made the administration of the pricing provisions of the code relatively simple, for the great majority feel that only by strict adherence to the code provisions can the industry avoid a resumption of the demoralization processes that occurred in 1932.

The paper and pulp industry takes the position that its open price filing provisions are necessary to enable it to meet its wage and hour obligations that have raised labor costs to the highest level in modern times, and that its pricing provisions, instead of guaranteeing a profit, have, in fact, permitted only the payment of higher wages to more workers as a first charge. The industry holds that the prices of paper and pulp have not kept abreast of the increases in other commodity prices, and that the operation of the Code has not been harmful to consumers or to competitors in the industry.

The industry respectfully submits that any changes in NRA policy which would effect its Code provisions must be considered on the basis of their specific application to the conditions of the industry, and with the full right of the industry to be heard separately and specifically with respect to any proposed application of any such policy to the industry."

Statement of A. W. Leslie

Under the provisions of the paper distributing trade code all paper distributing in the United States is regulated, A. W. Leslie, of Minneapolis, chairman of the code authority for the Paper Distributing Code, told the conference. He continued: The trade did $300,000,000 of business in 1934. There are in the United States 1677 firms principally engaged in paper distribution. In addition there are between 1200 and 1400 firms engaged in collateral lines, making a total of about 3000 members in the trade. The trade is the distributing outlet for approximately 60 per cent of paper and paper products manufactured in the United States. As a result the conditions of competition in the distributing trade determine to a large extent the conditions of competition, the operations and the financial status of the paper manufacturing industry.

The Paper Trade Code makes no provision for price *fixing* in any form. Therefore, I have nothing to say on that subject. The Paper Trade Code provides for optional price reporting, a provision common to many Codes. Others will, no doubt, discuss price reporting.

The Paper Trade Code is unique in its application of the loss limitation policy. It is, therefore, our practical experience with the loss limitation provision, as provided in our Code, that I desire to discuss. The opportunity to try out this policy, frankly experimental, and the constructive results attained thereunder are in large measure attributable to the cooperation of NRA and to the intelligent understanding with which its officials have approached the problems of this trade.

The policy is enunciated in Section 4 of Article VIII of the Code which reads as follows:

"In order to prevent unfair competition in the Trade and to avoid the demoralization of the market for paper and paper products, the practice of selling any merchandise below the replacement cost thereof to the seller is hereby declared to be an unfair trade practice. This practice results in speculative buying for a rise in the market and encourages periodical overproduction by manufacturers. Such overproduction in turn eventually makes for shutdowns in the paper manufacturing industry. It works back against the labor employed in manufacturing and distributing, and against the consumer. This declaration against sales below replacement cost by a member of the Trade does not prohibit him from selling any merchandise without adding to such replacement cost any profit to himself. But the selling price of merchandise should include an allowance for actual wages of labor, to be fixed and published from time to time by the Administrator."

It is noteworthy that the reasons for the policy are substantially embodied in this provision.

At the time when the Code was being considered, the trade had applied for a provision prohibiting sales below replacement cost of the merchandise, plus all overhead exclusive of rent, interest, depreciation, and capital charges. Through the stages of public hearing and post-hearing conference, the trade under a strict mandate of its members held fast to the replacement cost of merchandise policy. NRA requirements made it necessary for the trade to modify its position on the addition of overhead and to accept provisions for wage allowances only, but the position of the trade on replacement cost was basic to its whole effort to restore normal conditions and the Administration recognized this view to be sound and approved the request.

Controlling Reasons for Stand of Trade

The reasons for the trade's stand were complete and controlling. Throughout the depression the paper manufacturing industry suffered. The dollar value of the product of the paper manufacturing industry decreased by almost 60 per cent from 1927 to 1932. Employment, wages, and profits followed suit. Manufacturing plants throughout the United States closed, and were offered for sale at great sacrifices. In one year (1932), the working capital of the entire industry was reduced by 19 per cent. Conditions in the manufacturing field were chaotic. In one article, paper bags, the finished bag was selling at less than the actual cost of the paper from which it is made.

The trade submitted to NRA facts showing that these conditions were largely due to speculative buying in the distributing trade and the resultant dumping of stocks. This resulted in employment peaks and valleys, in manufacturers operations and in uneconomic expansion of plant facilities.

It was shown further that the Paper Distributing Trade was largely a business of small merchants. The average annual sales of a member of the paper distributing trade in 1933 was $140,000. The small merchant was particularly harmed by these competitive conditions. It was shown also that large stocks had been accumulated in the latter part of 1932 and early in 1933 at prices below the cost of manufacture. Some element of control was necessary for orderly liquidation. Under normal conditions prices on paper were comparatively stable, and it was only during the periods when products were dumped, that acute competitive conditions arose. For these reasons the trade

requested a loss limitation base, namely replacement cost. This was the only base which could be effectively administered.

The paper distributing trade has operated for one year under these provisions. Wage allowances have been made by the Administration which are added to the replacement cost of merchandise. Based upon actual operating figures the wage allowance addition to replacement cost averages less than one third of the total overhead cost of distributing paper, and, therefore, does not restrict competition but tends to effect efficiency in operation. Renewal of the provision has been granted twice by the Administration, once in June 1934 and again in September 1934. Both approvals were based upon exhaustive statistical research. Results of this policy have been gratifying. Warehouse stocks of merchants, who had been buying speculatively, materially decreased, the decrease being estimated at approximately 20 per cent in dollar value. The liquidation was orderly and except in cases of Code violation has not been such as to disturb the manufacturers' or distributors' markets. Conservative merchants have been encouraged to build up their stocks, due to more stable market conditions and to less danger from speculative buyers. Such increase in stocks, probably equals, if it does not exceed, the speculative stock decrease.

Employment Improved Materially

Employment in the Paper Trade materially improved. A comparison with July 1933 shows that during 1934, hours worked, were 9 per cent less and the hourly rate of pay 15 per cent more. Total number of employees increased by 9 per cent and payrolls increased 13 per cent. Operations of merchants changed from a loss to a small profit.

Manufacturers' operations leveled off and improved materially. Operations in the Paper Manufacturing Industry were between 40 per cent and 70 per cent of capacity and operations, although low, were nevertheless well sustained and evenly distributed through the year. Total employment in the manufacturing industry had increased 31 per cent and dollar volume of sales remained about the same. Figures show $440,000,000 sales for 1933, and $438,000,000 for 1934. The actual productive workers engaged by manufacturers increased from 80,000 in 1933 to 105,000 in 1934 and the average cost for labor per ton of paper increased 18 per cent over 1929 costs.

Price levels were substantially stable throughout 1934. Average prices for paper and paper products advanced less than 10 per cent from the low point of the depression and the distinguishing characteristic of the price level was its stability.

The loss limitation provisions as contained in the Paper Distributing Trade Code have been well and successfully administered. The Code Authority has divided the United States for purposes of administration, into seven regions. Telegraphic reports from each region received yesterday show clearly a general acceptance of the loss limitation provisions and remarkably few violations of this part of our Code. I read from these reports:

In Region No. 1 where there are 196 firms, there were:
19 Complaints
12 No Adjustments (due to Intra State)
6 Adjusted
1 Blue Eagle Deprived
1 Settled by Injunction

In Region No. 2 where there are 445 firms, there were:
275 Total Cases
82 Dismissed
137 Adjusted
54 Pending in various stages

In Region No. 3 where there are 125 firms, there is:
One complaint pending—Many adjusted without hearings.

In Region No. 4 where there are 530 firms, there were:
143 Total Complaints
6 No adjustments so far
147 Adjusted

In Region No. 5 where there are 67 firms, there is only one case. All other complaints adjusted without hearing by Regional and Area offices.

In Region No. 6 where there are 156 firms, there were:
1 NRA Adjustment
1 Code Authority Adjustment
All other complaints settled by Regional and Area offices.

In Region No. 7 where there are 158 firms, there were:
43 Total Complaints
36 Adjusted
7 Pending
Court action on 1 case

In Southern California Trading Area adjustments are being made at the rate of 25 per month. There are now 20, one case settled by Court action. In other trading areas in this Region, there were few complaints, nearly all now settled.

Favors Loss Limitation Provision

The paper trade throughout the United States strongly favors the continuance of the loss limitation provision, through to the expiration of the National Recovery Act. Progress has been made, but the emergency is not over.

The public too has a great stake in this progress. Increased volume and more stable operations in paper distributing and manufacturing must make for efficiencies in manufacturing and distributing which will result in paper products at lower prices. Increased employment at better wages in the manufacturing industry and distributing trade will have a direct effect upon the purchasing power of thousands of families.

It is respectfully submitted, therefore, that in the distributing field, the loss limitation policy has a peculiarly important place and is definitely in the public interest.

Howard P. Beckett Makes Vigorous Plea

Howard P. Beckett, Philadelphia, executive secretary and counsel for the code authority of the set-up paper box industry, made a vigorous plea for more effective enforcement of the code's price control provisions. He said his industry, highly mechanized, with an inelastic demand and a capacity of double demand, needed price control provisions to "save the industry."

He charged failure of the NRA to approve the proffered costing system of the industry and to enforce price control provisions led to a fall in prices "lower than ever before in the industry." Members have withdrawn moral and financial support from the code, and wages are threatened, he added. He said the industry demands through its Code Authority that pricing provisions be enforced.

Other Speakers

Mr. Whiteside suggested that a census of the industry be taken to see if the code Authority's costing formula was acceptable. Beckett said he thought this could be done. He denied an implied question from Mr. Smith that such a costing system as the industry had presented for NRA approval might lead to higher prices instead of merely a cost-floor to prevent losses.

Support of the open price provision as being not merely a "defense" provision but one constituting "one of the most fundamentally constructive steps toward making it possible to have intelligent management of American business," came from Henry S. Dennison, of the Dennison Manufacturing Company, Framingham, Massachusetts.

Mr. Dennison, whose remarks drew intermittent applause from the audience, declared at the outset that code labor standards will not in themselves bring about conditions of fair competition. He stated, moreover, that "enforcement of these provisions has tended to accentuate the difficulties of unfair competitive methods."

Declaring that business has consistently contained elements of loss since the time of Adam Smith, and that these elements, though minor in an entire industry, were sufficient to upset the majority of the units, Mr. Dennison declared that "without some protection it will be necessary for manufacturers who attempt to make both ends meet to offset the advantages gained by unfair price-cutting tactics, by forced labor-saving devices."

This would unfortunately throw the burden, he said, upon labor, which is the weakest economic group because of the oversupply of labor since 1921.

In his support of the open price formula, Mr. Dennison said that "there is room under this system of proper differentials, and several devices have been suggested and discussed which would allow of such differentials." He denied that such pricing would be the same as fixed prices, because "under this method prices can be changed at any time by the filing of a new list or the offering of new quotations by any single member of the trade." He also denied that this method made possible an improper raising of prices, adding that the contrary was the case, except where "natural" conditions, independent of the NRA, make monopolistic control possible or perhaps inevitable.

He said that in Office Memorandum No. 228, the NRA has recognized the value of open price systems.

Mr. Dennison called upon the NRA to include in its price policy "properly safeguarded procedures which actually prevent price wars in their earliest stages, and this policy should be broad enough to permit the development of such procedures to fit the requirements of particular industries."

He said that some such plan would include injunction proceedings by Code Authorities or other bodies to estop price wars, providing for later review of the situation and removal of estoppage. This suggestion was greeted with applause.

Mr. Dennison said he strongly emphasized immediate action along this line. He pointed out that prevention was often better than cure. Specific suggestions upon such a plan has already been submitted to the Administration, he said.

Mr. Dennison turned to the prohibition of many codes against making an original price list, or prices, below cost. These are constructive provisions, he said, but are dependent upon accurate costing systems. Although he said the NRA may have become somewhat skeptical of enforcing these provisions, he declared that it was his hope that "codes would put ahead the art of cost keeping tremendously."

Costs can be measured in the same sense that physical sciences can make measurements, he said, "that is, within a reasonable limit of error." He called upon the NRA to take action to see that "progress in the art of cost keeping" progresses.

At the conclusion of his remarks, Mr. Dennison was asked by Mr. Henderson if he had an explanation other than "infection" by monopoly industries, which tended to make prices rise even under open price systems. Mr. Henderson cited that there was an increase in high bids being secured by the Government Procurement division. Mr. Dennison said that "you know the records, and you're probably right."

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 14, 1935—At the annual meeting of the McQuillen Associates, the employees' organization of Storrs & Bement Company, held at the office of the concern Wednesday evening, the company presented service pins to the women and service buttons to the men who had been with the corporation ten, twenty-five and fifty years. Two women received the fifty-year pins, each of which contained a small diamond, and inscribed "Loyal Service." President Thomas B. Crosgrove, who presided, was re-elected.

A meeting of the wrapping Paper Division of the New England Paper Merchants Association was held Thursday at the Boston of Chamber of Commerce, with Robert M. Stone presiding.

A dividend of $2 a share has been declared on the debenture stock of the Dennison Manufacturing Company, on account of accumulations, payable February 1 to holders of record January 19.

Fred E. Mallonee, who has been with Carter, Rice & Co. Corp., for the last twelve years, has become a representative of the Andrews Paper Company. He will cover the Vermont territory as formerly, with postoffice address Box 71, Barre, Vt. Mr. Mallonee, who is a graduate of Northeastern University, lives in Revere, Mass.

John E. Brooks, president of the Brooks manufacturing Company, paper jobbers, was elected president of the New England Travelers Club at a business session of the organization, January 5, at the Boston Chamber of Commerce. Mr. Brooks brings to this office the view point of the younger element of the organization. He will embark at once upon a well-defined program.

Knight, Allen & Clark are pleased to announce that Jack Mathers, in the paper trade several years, has become associated with their company. Mr. Mathers was with Storrs & Bement Company a number of years.

Big Pulp Shipments to Japan

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., January 10, 1935—Pulp shipments to Japan from the mills of Spaulding Pulp and Paper Company, Newburg, Ore., have increased during the last few years from a point of no consequence to a position of 11th place among major Portland exports. Loading of 1500 tons of unbleached sulphite wood pulp tops off a thriving new export business in pulp for Oregon state.

Approximately 5500 tons of pulp was shipped from this port in 1933, practically all of it going to Japan for the manufacture of paper. The current loading of 1500 tons of pulp is the largest shipment ever dispatched from Portland and sets the Spaulding plant's exports since February 1, 1933 to 7000 tons.

The main bulk of Japan's pulp needs were formerly supplied by Sweden. Today Puget Sound and British Columbia pulp mills share with Oregon mills the Nippon business.

Spaulding company officers are: J. C. Compton, president; E. Fred Emery, vice-president; O. M. Allison, secretary-treasurer and J. B. Wilt, mill superintendent.

Lake States TAPPI Discuss Gears and Beaters

The Lake States Section of the Technical Association of the Pulp and Paper Industry met at the Conway Hotel, Appleton, Wisconsin, on Tuesday evening, January 8. One hundred members and guests were present.

Falk Gears

A. T. Gardner, Combined Locks Paper Company, Chairman of the Section, opened the meeting by introducing H. S. Falk, vice president of the Falk Corporation. After a few remarks, Mr. Falk introduced Walter L. Schneider who gave the paper, "Gears in the Paper Industry," which is by P. C. Day, chief engineer of the Falk Corporation. The paper began with a history of gear transmission. The old style was branded as "haphazard" and its disadvantages were pointed out as mainly due to the imperfections of spur gears to the complications of internal construction, and to difficulties in the way of proper lubrication and cooling. As the advantages of the helical principle in gearing became generally known, the manufacturers soon succeeded in demonstrating that speed reducers embodying this principle had many advantages such as higher gear ratios within more compact dimensions, less noise, greater efficiency and longer life. Single helical versus double helical gears-right angle drives, bearings, speed reducer versus motor reducer, lubrication, and couplings were then discussed and finally some simple rules for the selection of speed reducers and motor reducers were given.

The Vortex Beater

The second paper of the evening entitled "The Vortex Beater," was given by R. M. Radsch of the Appleton Machine Company. The Appleton Vortex Beater consists of a cylindrical tub in which is a bowl-shaped stator, adjustable up and down for proper refining action. A ring of knives is attached to the bottom of the stator, corresponding to the bedplate in standard practice. In the center is the rotor connected to the speed reducer and motor mounted on the tub cover. The lower part of the rotor extends outward beneath the stator and carries a ring of knives on the upper surface, corresponding to roll knives. Equipped with feeder screw and impeller blades, the rotor promotes efficient stock circulation.

The Vortex beater is charged in the usual manner. A 1,500 pound machine can be filled with wet machine lap stock in from three to five minutes. Plugging is practically impossible. As the rotor revolves, the stock in the bowl of the stator is forced downward and between the two sets of knives. It flows up between the outer wall of the stator and the rub wall, overflowing over the entire rim of the stator and coming again in contact with the rotor action.

The Vortex beater principle of stock circulation provides more efficient beater operation. Rapid loading, short distance of stock travel, fast circulation, efficient knife action and rapid emptying greatly reduce the time of each operating cycle. The horizontal flow of stock in the standard Hollander beater requires large floor space and excessive power consumption, a large percentage of the power being utilized in maintaining the circulation of the stock. Beating action is limited to only that portion of the roll knives coming in contact with the bedplate. The Vortex beater requires half the floor space, consumes much less power and improves beating action as all of the rotating knives are in the stock and in contact with all of the bedplate knives during the entire time of beating. Resultant economies are very pronounced.

Those Present

Those present were as follows: H. T. Holbrook, Wadhams Oil Company, Milwaukee, Wis.; Herb Heilig, Wisconsin Vocational School, Appleton, Wis.; W. Harrison, Institute of Paper Chemistry, Appleton; L. L. Griffiths, Heller & Merz, New York; J. H. Graff, Institute of Paper Chemistry, Appleton; E. P. Gleason, Nekoosa Edwards Paper Company, Port Edwards, Wis.; G. A. Golden, Falk Corporation, Milwaukee; John Gincaud, Kimberly Clark Corporation, Neenah, Wis.; C. J. Gerlach, Hoberg Paper and Fibre Company, Green Bay, Wis.; A. T. Gardner, Combined Locks Paper Company, Combined Locks, Wis.; L. E. Fitzgerald, Paper Makers Chemical Corporation, Kalamazoo, Mich.; W. P. Feeney; H. S. Falk, Falk Corporation, Milwaukee; G. F. Enderlein, Mosinee Paper Mills, Mosinee, Wis.; R. J. Egan, Bulkley Dunton & Company, Chicago, Ill.; David De Zurik, De Zurik Shower Company, Sartell, Minn.; J. T. Doerfler, Kimberly Clark Corporation; A. J. Detrie, Standard Oil Company, Green Bay; R. L. Davis, Interlake Pulp and Paper Company, Appleton; F. K. Culloden, Bethlehem Steel Company, Milwaukee; Burt Cowan, Standard Oil Company, Green Bay; W. C. Christensen, Hoberg Paper and Fibre Company, Green Bay; C. H. Child, Nekoosa-Edwards Paper Company, Nekoosa, Wis.; C. W. Cassel, Institute of Paper Chemistry, Appleton; Glenn Carroll, Combined Locks Paper Company, Appleton; Otto Kress, Institute of Paper Chemistry, Appleton; L. F. Bunde, Hoberg Paper and Fibre Company, Green Bay; A. E. Bachmann, Kimberly Clark Corporation, Neenah; Cliff Bruden, Wallace & Tiernan Company, Madison, Wis.; W. H. Buchanan, Appleton Wire Works, Appleton; W. J. Auchtu, Hoberg Paper and Fibre Company, Green Bay; Louis De Bauche, Jr., same company; A. W. Agrell, Patten Paper Company, Kaukauna, Wis.; Harold Donchens, Winfred B. Giese, Clarendon Sargent, Hoberg Paper and Fibre Company, Green Bay; J. T. Sobota, Ft. Howard Paper Company, Green Bay; F. W. Stolz, same company; E. M. Leavitt, and R. W. Brenzel, Thilmany Pulp and Paper Company, Kaukauna, Wis.; H. S. Johnston, Fox River Paper Company, Appleton; J. Foote, same company; G. S. Brazeau, Weyerhaeuser Timber Company, Chicago; H. P. Hadsen, Appleton Machine Company, Appleton; R. J. Zaumeyer, Kimberly Clark Corporation, Neenah; D. B. Wicker, Institute of Paper Chemistry; S. D. Wells, Combined Locks Paper Company; J. E. Watson, Wisconsin Wire Works, Appleton; C. F. Watson, Nekoosa-Edwards Paper Company; E. H. Voigtman, Kimberly Clark Corporation; J. A. Turner, E. I. duPont Company; Alex Stoyanoo, Marathon Paper Mills Company, Menasha, Wis.; Paul Boronow, Valley Iron Works, Appleton; J. A. Staidl, Thilmany Pulp and Paper Company; J. E. Spalding, Institute of Paper Chemistry; G. H. Spaulding, Kimberly Clark Corporation; R. H. Savage, Mead Corporation, Chillicothe, Ohio; J. P. Strasser, Stein Hall Manufacturing Company, Chicago; R. L. Shaw, W. A. Jones Foundry and Machine Company; W. L. Schneider, Falk Corporation, Milwaukee; C. E. Saecker, Appleton Machine Company, Appleton; H. F. Rex, Nekoosa Edwards Paper Company; W. R. Reiman, Standard Oil Company, Iron River, Michigan; Albert Pupinburg, Combined Locks Paper Company; L. B. Powers, Kimberly Clark Corporation; Alfred Phillips, Consolidated Water Power and Paper Company, Apple-

ton; P. A. Paulson, Appleton, Wis.; Philip Nolan, Institute of Paper Chemistry; M. J. Molsberry, General Electric Company; J. S. Mohr, Chromium Corporation of America, Chicago; E. P. Miller, Hoberg Paper and Fibre Company, Green Bay; J. J. Meyer, Badger Paper Mills, Peshtigo, Wis.; A. E. May, May Brothers Company, Green Bay; J. W. McIntyre, Institute of Paper Chemistry; E. R. Laughlin, E. I. duPont de Nemours & Co., Wilmington, Del.; Lloyd Lang, Kimberly Clark Corporation; G. H. Krohn, Globe Steel Tubes Company, Milwaukee; E. C. Jacobi, Standard Oil Company, Green Bay; and A. J. Hutchinson, Standard Oil Company, Green Bay.

Boston Paper Market Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 14, 1935—A generally good business was sustained among Boston paper merchants during the last week. Some report a little more activity in fine papers since the first of the year. At the office of a prominent manufacturer a little better business and a step-up in inquiries was reported. Dealers in fancy papers noted improvement, with a number of orders coming in. Orders for wrapping paper were received in moderate to fairly good volume, although the rainy weather most of the week seriously affected trade in the retail stores, resulting in less buying from that source. The first two weeks of the year were productive of a little business in box board, although box manufacturers have been more or less occupied in taking inventories.

Paper stock lapsed into comparative quietness. Although a little interest was shown, there was no snap to the market. In old papers, there was a slight upward tendency in folded news, with .30 @ .35 quoted against .25 @ .35 the previous week. Bagging, new and old domestic rags, and foreign rags were practically unchanged in value.

Correction

It was incorrectly reported in this section last week that the price of newsprint had advanced to $41 per ton. The correct quotation is $42 per ton, delivered Boston.

Flood Stage in Streams Handicaps Mills

[FROM OUR REGULAR CORRESPONDENT]

WARRENSBURG, N. Y., January 14, 1935—Heavy rains in this section have left streams in the flood stage and interferred with operations in several industrial plants. Ice jams in the Schroon River caused the water to back up to the plant of the Schroon River Pulp and Paper Company and forced a cessation of operations for some time. A section of the state highway near the paper mill property was covered with several feet of water and damage to equipment was threatened. At Conklingville the huge power plant of the New York Power and Light Company ceased operations in order to lessen the flow of the Sacandaga Reservoir into the Hudson River besides helping to eliminate flood damage.

Heavy Pulp Shipments Arrive at Albany

ALBANY, N. Y., January 14, 1935—The Swedish vessel "Anten" docked at the port here this week with 8,000 tons of wood pulp and stevedores are working overtime unloading. All facilities at the terminal here are being taxed to the utmost and storage space it at a premium. Improvements have been made at the port which allow several thousand additional square feet for storage purposes. Another large shipment of pulp from Sweden arrived here last week and several others are expected this month.

Fred J. Rooney with Merritt Engineering & Sales Co., Inc., Lockport, N. Y.

Fred J. Rooney, one of the most widely known paper mill superintendents in the country, is now with the Merritt Engineering and Sales Company, Inc., Lockport, N. Y. He is in charge of the Meyers-Mesco regulators, as well as the water feeders and viscosity regulator business of the company.

Mr. Rooney started in the paper industry in his youth and became thoroughly trained in all branches of the business until he won his way through his own initiative to the superintendency. His last paper mill connection was as general superintendent of the Upson Company at Lock-

FRED J. ROONEY

port, N. Y., but more recently for a long number of years he was connected with various mills in the East and Middle West as superintendent. Obviously this thorough training well qualifies Mr. Rooney to be of service to paper mills in his new connection.

Mr. Rooney early became connected with the American Pulp and Paper Mill Superintendents Association and has been an active and influential member of this organization ever since he joined it.

He was elected president of the Association at the national convention held at the Hotel Jefferson, Richmond, Va., May 26-28, 1927 and served with distinction throughout his term. At the annual meeting held in June 1932 at the Hotel Statler, Buffalo, N. Y., he was presented with the annual trophy of a gold watch, awarded to the member of the organization whose contributions to the association had been of an outstanding character.

Mr. Rooney's numerous paper mill friends throughout the country will wish him success in the work which he is now doing.

McElwain Club Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 15, 1935—The annual meeting of the McElwain Club composed of executive and business heads of the Crocker-McElwain Company and Chemical Paper Manufacturing Company was held last week. Speakers at the meeting included Clifton A. Crocker, Joseph E. Holmes and Elmer C. Tucker. The following officers were elected: President, Ray C. Winkler; Vice President, Thomas Stewart; Secretary, Walter F. Diller; Treasurer, Walter A. Scott; Governing Board, William Ford, Clifford Grant, Daniel Schwartz and A. W. Ashley.

Obituary

Herbert T. Kelley

BELLOWS, Vt., January 14, 1935—The community was saddened Sunday morning, January 6, when the death of Herbert T. Kelley became known. A mill executive in Bellows Falls for 27 years, and a leader in many community activities, Mr. Kelley will be greatly missed. For the past several years, his health had not been good and on Thanksgiving Day he suffered a heart attack from which he never recovered.

Herbert Thomas Kelley was born in Putney, Vt., November 27, 1880, the son of Maria White and Morris B. Kelley. At an early age, Mr. Kelley's parents moved to Bellows Falls where he attended the graded schools until 1895, when they moved to Fayetteville, N. Y. After living there a year, the family moved to Riverton, Conn., where his father operated a paper mill. He attended and graduated from the Gilbert High School in Winsted, Conn., in 1898. He then entered the Massachusetts State College at Amherst, but was forced to leave after one year because of the ill health of his father. At this time, the family moved to Northampton, Mass., where his father had purchased a grocery store and for a short time Mr. Kelley was in business with his father in the store, also attending Northampton Business College, from which he graduated in 1902. His family moved to Bellows Falls in 1901.

After graduating from Northampton Business College, Mr. Kelley taught in a business college at Lebanon, Pa., for a year and for three years at Walworth Business Institute in New York City. During this time he attended New York University, taking a course in accounting. Previous to this, he had graduated from the Zanerian Art School in Columbus, O., having studied penmanship there for two summers.

In 1907, he returned to Bellows Falls to enter the Robertson Paper Mill as office manager. The mill at that time was owned by John, George and Frederick Babbitt. April 15, 1908, he married Madeline Babbitt, daughter of F. H. Babbitt, who survives him. Five children were born to them, all of whom survive. They are Helen and Katherine, both students at Middlebury College; Harold, of Rutland; Lawrence and Allen, of Bellows Falls. Two sisters and a brother also survive, Mrs. Blanche Abbott, of Bellows Falls; Mrs. Stella Whitman, of Drewsville, and Erwin W. Kelley, of Plattsburg, N. Y.

In 1921, the Robertson Paper Mill was divided, John Babbitt retaining the Robertson mill and taking that half of the business constituting the waxing department, while Mr. Kelley and F. H. Babbitt formed the Babbitt-Kelley mill, which constituted the manufacturing end of the business. In 1925, Mr. Babbitt retired and Mr. Kelley assumed the active management of the mill.

Following the flood of 1927, when the Babbitt-Kelley mill was destroyed, Mr. Babbitt returned to the business as president while Mr. Kelley was treasurer and general manager. Mr. Babbitt again retired in 1931, shortly before his death, and the mill became the Kelley Paper Corporation, with Erwin W. Kelley, president, and Herbert Kelley, treasurer and general manager.

Erwin Kelley had recently come to Bellows Falls from Plattsburg, N. Y., to make plans for taking over the managership of the mill until Herbert Kelley was again able to work.

Mr. Kelley was an enthusiastic member of the Masons, and at various times had held almost every office in the Blue Lodge, the Chapter, the Council and the Commandery. He had a wide acquaintance among the Masons of Vermont and at the time of his death was the Past Thrice Illustrious Grand Master of the Grand Council of Vermont, Grand Captain of the Host in the Grand Chapter of Vermont, and Grand Captain of the Guard of the Grand Commandery of Vermont.

Charles William Harter

[FROM OUR REGULAR CORRESPONDENT]

LAFAYETTE, Ind., January 14, 1935—Charles William Harter, 78 years old, of this city, a department head in paper mills of Indiana during his entire business life, died late last week at his home. He was born here and was in the first classes at Purdue University. Since 1896 he has been identified with the strawboard industry. He was connected with mills in Muncie, Anderson and Noblesville and for the last 31 years has been with the Lafayette Boxboard and Paper Company, now the Alton company. Two children survive. Funeral services were held in the residence with interment in the Harter mausoleum in a local cemetery.

William Dexter Brigham

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 14, 1935—William Dexter Brigham, 83, identified with the Dennison Manufacturing Company for forty years, died January 9 at his residence, 41 Wheatland avenue, Dorchester, Mass., after a prolonged illness.

Mr. Brigham was born in old Bumstead place, off Tremont street, opposite the Park Street Church, Boston, the son of James Madison and Mary Frances (Sawin) Brigham. When he was twelve his parents removed to Dorchester, where he attended the public schools. He was graduated from the Dorchester High School in 1869 and immediately obtained a position with the Dennison company.

For over sixty years he was a member of the Second Congregational Church, Dorchester, and took great interest in all its activities. For forty-four years was the church clerk and for twenty-five years a deacon. He was a member of the Bostonian Society of Boston and the Congregational Club. At the time of the dedication of the Wendell Phillips statue he was secretary of the Wendell Phillips Association. He had been active in the work of the Lord's Day League of New England and was at one time its secretary.

His widow, Mrs. Lizzie M. (Fuller) Brigham, and two sons, Arthur Dexter Brigham, of New York, and William Winthrop Brigham, of Boston, are living.

John Eiler

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 14, 1935—John Eiler, well known throughout the middle west and northwest as a paper mill builder, died at his home at Appleton, Wis., last week at the age of 80 years. He was in the construction business for more than sixty years. In the early days he was foreman for the Charles P. Pride Company of Appleton, which erected a number of Fox river valley mills. Later he was associated with the Jacobson de Guerre Company of Wisconsin Rapids, Wis., builders of mills in the Wisconsin river valley. He had much to do with erection of most mills in the upper peninsula of Michigan in Minnesota, Washington, Idaho and Ohio. He retired a number of years ago. Burial took place at Appleton.

TAPPI Kraft Pulp Meeting

Tentative plans point to an interesting meeting during the annual convention of the Technical Association of the Pulp and Paper Industry, at the Waldorf-Astoria Hotel, New York, on February 18 to 21, 1935 on the problems of sulphate pulp manufacture. This meeting is being sponsored by the TAPPI Alkaline Pulping Committee, of which H. R. Murdock of the Champion Fibre Company, Canton, N. C. is chairman.

Otto Kress and W. D. Harrison of the Institute of Paper Chemistry will read a paper on "The Cooking of Kraft Pulp with Improperly Settled White Liquor."

As would be expected, test results show that as the amount of retained lime increases the strength of the pulp decreases. Photomicrographs show that lime lies on the outside of the fibers. If the pulp produced is washed with dilute hydrochloric acid it is improved considerably.

W. T. Webster of the J. O. Ross Engineering Corporation, New York, will report the results of a survey on "Heat Requirements of the Sulphate Process."

W. T. Hinckley of the Swenson Evaporator Company will describe "The Recent Trends in Black Liquor Evaporator Design and their Use in Multiple Effect Combinations.

H. R. Murdock will read a paper on "The Bleaching of Kraft Pulp."

Otto Kress and J. W. McIntyre of the Institute of Paper Chemistry will read a paper on "The Distribution of Sulphur in the Kraft Cooking Operations."

This paper deals with the determination of sulphide content of black liquor and the variation of sulphide during the cook. A sulphur balance is given.

H. R. Murdock will present a committee report on "The Calculation of Heat Input into Alkaline Pulp Digesters."

With Mr. Murdock on the TAPPI Alkaline Pulping Committee are G. H. Tomlinson, Howard Smith Paper Mills; M. W. Bray, Forest Products Laboratory; J. A. Extrom, Tomahawk Kraft Paper Company; W. F. Gillespie, Bogalusa Paper Company; E. G. Goodell, Stevens Point Pulp and Paper Company; E. C. Hendrickson, Mead Corporation; G. F. McCrea, Mead Fibre Company; John McCrystle, Brown Corporation; M. W. Phelps, Pacific Mills, Ltd.; W. E. Piper, The Dorr Company; S. R. Schwartz, Forest Products Laboratory; J. E. Spaulding, Institute of Paper Chemistry; J. A. Staidl, Thilmany Pulp and Paper Company, and W. T. Webster, J. O. Ross Engineering Corporation.

Lawrence Centrifugal Stock Pumps

The Lawrence Pump and Engine Company, manufacturers of the Vortex line of centrifugal pumps, have issued a new six-page bulletin covering the centrifugal stock pumps they make.

The company claims these pumps are not made to meet an average set of specifications, but are best described as "Custom-Built," each pump being constructed to comply with the purchaser's individual operating conditions. The bulletin takes up the array of features which are flexibly designed into the Vortex Stock pump. The pump's general heavy construction and large passage areas appear to fit it admirably for handling pulp and paper stock of consistencies up to 5% and over, sewage, dye stock, tanners waste, or any liquid carrying a high percentage of solids, when a low velocity is needed.

Complete information is given in the bulletin, which may be had by writing the company at P. O. Box 70, Lawrence, Mass., and asking for Bulletin D-29 "Custom-Built Pumps."

TAPPI Paper Coating Meeting

The Coating Committee of the Technical Association of the Pulp and Paper Industry will sponsor a meeting during the annual convention of the Association on February 18 to 21, 1935, at the Waldorf-Astoria Hotel, New York.

W. R. Willets of the Titanium Pigment Company, will present a paper on "Surface Application of Titanium Pigments."

E. J. Kramer of E. I. duPont de Nemours & Co. will discuss "Chemical Developments and their Relation to the Paper Industry."

J. J. O'Connor of the Mead Corporation, is chairman of the TAPPI Coating Committee and with him are associated H. M. Annis, Allied Paper Mills; Gerald Haywood, West Virginia Pulp and Paper Company; H. C. Bradford, Rex Paper Company; O. W. Callighan, Edgar Brothers Company; H. M. Cyr, New Jersey Zinc Company; Paul Dieterle, Louis De Jonge Company; F. W. Egan, John Waldron Corporation; R. M. Cobb, Lowe Paper Company; E. Fladmark, Champion International Paper Company; K. T. King, E. I. duPont de Nemours & Co.; A. Lewenstein, Appleton Coated Paper Company; L. W. McFail, Oxford Paper Company; G. A. Oechsle, Dill & Collins, Inc.; H. R. Rafton, Raffold Process Company; R. F. Reed, Lithographic Technical Foundation; M. R. Sentman, J. H. Day Company; E. Sutermeister, S. D. Warren Company.

A. P. W. Plans New Financing

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., January 14, 1935—A statement has been sent to security holders of the Albany Perforated Wrapping Paper Company, giving notification of a new financing plan in order to enlarge facilities and carry out an expansion program at an estimated cost of $400,000. The plan is of an economic nature calling for operations under one roof to be followed by the sale or lease of the plant on Broadway. The Liberty mill of the company is situated on the Hudson River near the Barge Canal terminal. The letter to stockholders states that an annual saving of $80,000 can be effected by the concentration of operations in a single plant.

The financial plan as proposed in the statement to stockholders is as follows: "Holders of first mortgage bonds to accept payment in full of the interest coupons due April 1 and Oct. 1, 1935, 1936 and probably 1937, fifty per cent of the amount of the respective coupons in cash; holders of convertible notes to agree to waive or adjust interest or agree to accept interest only if earned, for a period of two or probably three years beginning with the interest date July 1, 1935, such interest to be non-cumulative; a substantial amount of new money to be provided by the stockholders."

The letter stated that for the fiscal year ending June 20 last the company earned $47,284 over interest on first mortgage bonds and convertible notes. The funded indebtedness is $3,449,412.50. It was also stated that during the depression the aim has been to improve quality and reduce production and distribution costs. It is reported the company has been informed of three concerns interested in acquiring the Broadway plant by lease or purchase. The plan proposes the organization of the A.P.W. Building Corporation to construct the addition to the Liberty mill and certain rights may be offered to security stockholders who cooperate in it.

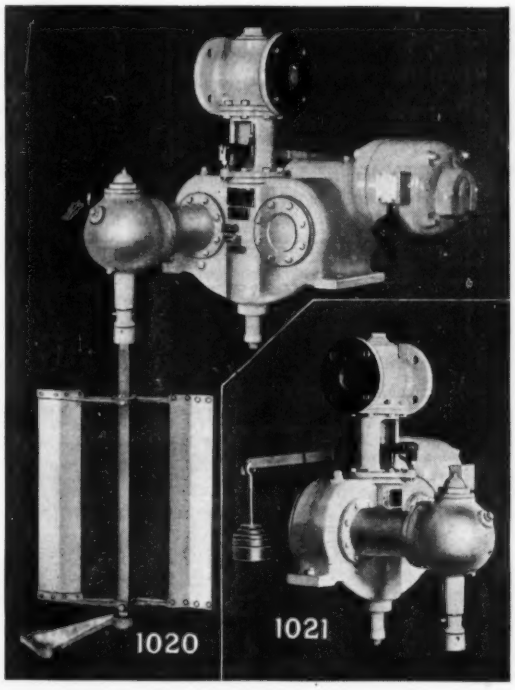
AUTOMATIC REGULATION OF CONSISTENCY

AN ACCEPTED NECESSITY

The Automatic Regulation of Consistency in Pulp and Paper Mills is now accepted as a technical necessity in a highly competitive field. The essential need is to select the Regulator that has proved to be without question a practical success in operation on all kinds of stock and under all sorts of conditions.

MEYERS-MESCO REGULATORS

have made good in so wide a range of applications and the monthly additions to installations in outstanding mills have built-up so impressive a record that they easily take first place in the paper industry. It is the standard instrument for automatic regulation.



In our effort to more fully serve the Pulp and Paper Industry with our line of MEYERS-MESCO CONSISTENCY REGULATORS, we are pleased to announce that

FRED J. ROONEY

has associated himself with our organization. Mr. Rooney, a Past President of the American Pulp & Paper Mill Superintendent's Association, has been in the paper making business for many years. We feel that his intensely practical knowledge of the industry and its requirements will be of real value to us in more fully serving the trade with MEYERS-MESCO REGULATORS.

The engineering, manufacturing and selling of our Regulators are conducted from our plant and office at Lockport, N. Y. with Mr. Rooney in active charge of

AMERICAN and CANADIAN SALES

Regulators sold to the Canadian trade will, as in the past, be manufactured and shipped from Galt, Ont., where we have suitable arrangements for such work. All Canadian inquiries should, however, be made direct to Lockport.

MERRITT ENGINEERING & SALES CO., INC.

LOCKPORT, N. Y.

PAPER TRADE JOURNAL

ESTABLISHED 1872

15 West 47th St., New York, N. Y.

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Editor

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Price, Per Copy, 10 Cents

United States, Per Annum, $4.00

Canada, including tax, $7.50; Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. C New York, January 17, 1935 No. 3

This publication is now and always has been printed on paper made in the U. S. A.

COMING EVENTS

AMERICAN PAPER AND PULP ASSOCIATION, Fifty-Seventh Annual Convention and Meeting, Waldorf-Astoria Hotel, New York, February 18-21.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Convention, Waldorf-Astoria Hotel, New York, February 18-21. Annual Luncheon, Waldorf-Astoria Hotel, Thursday, February 21.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 19.

NEW YORK ASSOCIATION OF DEALERS IN PAPER MILL SUPPLIES, Annual Banquet, Hotel Commodore, Wednesday, February 20.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria Hotel, New York, February 18-20.

CANADIAN PULP AND PAPER ASSOCIATION, Annual Meeting, Montreal, week of January 21.

TECHNICAL SECTION, CANADIAN PULP AND PAPER ASSOCIATION, Annual Meeting, Montreal, January 23-25.

THE SUPREME COURT SPEAKS

News of more than ordinary importance, even in these extraordinary days when unusual news is so frequently the rule, was made at Washington last week. The earlier of these pieces of news was the decision by the Supreme Court in the first case to come before it on the constitutionality of the New Deal legislation, holding invalid the oil production control provisions of the National Recovery Act. Every member of the Court concurred in the opinion with the exception of Associate Justice Cardoza.

The Court in handing down the decision told the President that he had no constitutional right to ask Congress to delegate to him the exercise of certain drastic powers, that Congress had no authority to delegate these powers to the President, and that the President could not legally exercise them.

It is natural to assume that this will have dampening effect on radical legislation in general and will serve to impress on the members of Congress that the orderly process of law must be strictly observed in whatever measures they undertake to pass.

Later in the week, the Chief Justice of the Court literally made the nation sit up when he demanded at the hearing of the gold clause cases that the Department of Justice show whence the administration derived the power to violate its solemn promise and pledge to pay its bonds in gold. A ruling against the Government in this matter would, it is generally believed, create something akin to chaos, but many who are well versed in the procedure of the Court do not agree that this remark of the Chief Justice necessarily indicates an adverse decision. In this connection an interesting statement made some months ago by Russell Leffingwell, a former United States Treasury official and now a legal partner of J. P. Morgan & Co., is being much discussed. This statement is as follows:

"The sovereign, the State, has and must have control of its currency and therefore of obligations payable in its currency, however expressed. This power it cannot abdicate or contract away. When the force of an overwhelming catastrophe compels a revaluation of its currency, as part of a plan of reorganization and recovery, it can and must in common honesty make that revaluation effective universally, without fear or favor, without preferring one creditor over another."

An early decision is looked for and this is greatly to be desired in view of the fundamental importance of this whole matter.

CODES NEED PRICE FACTORS

Without fair trade practice arrangements against price demoralization and including merely labor provisions, codes of fair competition would be only so many Volstead Acts, George A. Sloan, chairman of the Consumers' Goods Industries Committee, told the National Industrial Recovery Board in its price policies hearing in Washington last week.

Speaking for the committee appointed last March by the then National Recovery Administrator, Hugh S. Johnson, following the general Code Authority Conference in Washington, Mr. Sloan, who is also chairman of the Cotton Textile Code Authority, insisted that maximum hours and minimum wage provisions, "useful and necessary as they are in themselves, do not prevent price demoralization."

"There may be some trade practice provisions," he continued, "which are not directed against demoralization of price as, for example, piracy of design; misrepresentation of a competitor's goods, and some others. But the great mass of trade practice provisions and those which are vitally important in a time like this, are those which are intended to check price demoralization and protect a fair competitive price. If the National Industrial Recovery Act were to confine its efforts in dealing with the destructive effects of the break-down of the competitive system, to codes with such side issues as these which are, in any event, already protected by existing law, the National Recovery Administration might just as well turn us back to 1932 and go home.

"Maximum hours and minimum wage provisions, useful and necessary as they are in themselves, do not prevent price demoralization. While putting the units of an industry on a fair competitive level in so far as labor costs are concerned, they do not prevent destructive price cut-

ting in the sale of commodities produced, any more than a fixed price of material or other element of cost would prevent it. Destructive competition at the expense of employees is lessened, but it is left in full swing against the employer himself and the economic soundness of his enterprise.

"The labor provisions of the codes must not become Volstead acts. An industry that feels that codes are instruments dealing evenhandedly with the problems of the employer and employee occasioned by the depression has both an ability and a desire to cooperate in compliance. But if the partnership of industry with Government which was invoked by the President were terminated (as we believe it will not be) then the spirit of cooperation, which is one of the best fruits of the NRA experiment, could not survive."

Discussing minimum price, open price filing, sales below cost and other fair trade practice provisions, including measures for adjustment of capacity to available demand, Mr. Sloan emphasized that "in all of them we are dealing with a new technique."

"Each," he added, "is susceptible of mistaken use; each may have been used in cases where there was no occasion for its use, where it could not be used successfully because of particular conditions, and in situations where it has been misused. * * * The real problem is where can they usefully be employed, and how can the effectiveness of their use be improved?"

After a very careful study of such existing provisions in consumers' industries codes, the consumers' goods industries committee, Mr. Sloan pointed out, had recently adopted the following resolution:

"Policies and provisions, which are intended to provide instrumentalities for preventing or checking undue and harmful disruption of prices, should not only be retained but should be made available during emergencies with minimum delay. If industry is to be held to higher costs of production by virtue of hours and wages provisions, then industry must be upheld against destructive competition by policies and by provisions of the character mentioned and by their quick application.

"Over-capacitated industries, upon proper showing of facts, should be permitted and encouraged to adjust the use of productive facilities of consumption. Such policy will benefit both management and labor without imposing any burden on the public."

Fire Damages Toledo Paper Stock Co.

TOLEDO, Ohio, January 14, 1935.—Paper stock valued at $35,000 was damaged by fire, smoke and water last week when a blaze originating in the third floor of the Toledo Paper Stock Company, 1509 Lagrang street, routed employes from the building.

Cause of the fire was not determined but it was believed it may have resulted from overheating of loose paper in a drying process.

F. J. Trout, manager of the company, estimated the loss, principally from water, at $35,000.

Canadian Technical Meeting

The Technical Section of the Canadian Pulp and Paper Association will hold its annual meeting at the Engineering Institute of Canada Building, Montreal, January 23 to 25, 1935.

C. D. Yontz will read a paper of "The Freeman Pyrite Burner in Operation."

G. I. Hoover will discuss "The Use of White Water in the Fine Paper Industry."

J. B. Gough will discuss "The Relative Location of Breast Roll, Slice and Apron."

J. B. Jones will read a paper on "Commercial Yields of Pulp from Wood in the Manufacture of Sulphite."

H. B. McAdam and L. C. Anderson will report on the "Extension of High Speed Grinding Studies to Semi-Commercial Studies.

W. G. Wright has a paper on "Pulpwood Costs in Woods and Mill Operation.

W. A. Delancy will read a paper on "Logging Jack Pine."

W. A. E. Pepler and I. G. Belcher will give a paper on "Dirt in Wood."

T. A. McElhanney will read on "Preliminary Report on Study of Pulpwood Properties as related to Growth Conditions."

W. B. Campbell has a paper on "Hydration Studies."

F. H. Yorsten will read a paper on "New Developments in Lignin, Removal Studies."

Harold Hibbert of McGill University will report on work being done in his department.

E. W. Beatty, Chancellor of McGill University will be the luncheon speaker.

The annual dinner will be held on Wednesday evening, January 23rd.

All members of the Technical Association of the Pulp and Paper Industry are invited to attend.

Delaware Valley TAPPI to Meet

The meeting of the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will be held at the Engineers Club, Philadelphia, Pennsylvania Friday evening, January 18 at 6:30.

The speaker is W. Boyd Campbell, of the Forest Products Laboratories of Canada, who will discuss the latest theories relating to hydration.

Anyone interested in attending the meeting will be welcome.

New England TAPPI to Meet

The next meeting of the New England Section of the Technical Association of the Pulp and Paper Industry will be held at the Nonotuck Hotel, Holyoke, Massachusetts, Friday evening, January 18 at 6:30.

The speaker will be Dr. Frederick W. Adams of the Massachusetts Institute of Technology, who will discuss "Some Important Factors Involved in the Drying of Paper."

$75,000 Fire Sweeps Jersey Paper Plant

HAMBURG, N. J., January 14, 1935.—Several buildings and valuable machinery owned by the Union Waxed and Tissue Paper Company here were destroyed by fire Tuesday of last week. Loss was estimated at $75,000.

The plant was closed about a year ago when the concern moved to New York State, but the machinery never was removed.

Thank heavens it's washable

SAYS MRS. JACKSON ☆

Jerry leaves his mark wherever he goes. Not so long ago a smudge like this would have ruined the looks of the whole room . . . required costly repairs — or possibly a complete repapering job.

But Mrs. Jackson doesn't worry. She knows that this paper can be washed as quickly and easily as woodwork. A few strokes with a wet sponge or rag and the paper is as good as new. Not a spot or streak . . . and the colors are as bright and clear as the day they were put on.

Mrs. Jackson — and thousands like her — are thanking heavens for *washable* wall paper today.

Mrs. Jackson doesn't know what goes into wall papers like this that stand up under repeated washings . . . give longer life to papering jobs . . . save care and money for the people who buy them.

But every manufacturer knows that it can't be done without proper coatings . . . high grade Casein and Formaldehyde . . . on well sized hanging stock.

We offer you a clean, uniform Casein made under rigid technical control to produce characteristics suitable for this purpose. . . . Also high quality Formaldehyde and other agents used for setting.

★ The Jacksons are a typical American family. They are neither rich nor poor. They have money to spend. They know what they want — and what they can afford. They may not buy scientifically but they buy practically . . . are alert, quick to recognize new standards. To keep the Jacksons buying your product — keep improving it. They will respond . . . with purchases.

American Cyanamid

AND CHEMICAL CORPORATION

30 Rockefeller Plaza • New York, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Certified Stains for Fiber Differentiation*

By John B. Calkin[1]

Abstract

Attention is directed to the importance of using standard dyes where possible, and in the case of a new stain to provide others trying out the stain with some of the same lot of dye. Mention is made of the desirability of TAPPI cooperation with the Biological Stain Commission, which is engaged in the standardization of stains used in microscopical work.

The purpose of this communication is not to discuss in detail the various dyes used in the differentiation of papermaking fibers, but to stress, in a general way, the importance of using standard dyes where possible, and in the case of a new stain to provide others trying out the stain with some of the same lot of dye.

In December, 1921, the National Research Council organized a Committee on Standardization of Biological Stains, which has now developed into the present Biological Stain Commission under the Chairmanship of H. J. Conn. (*1*)

The purposes of this Commission have been: (1) education, (2) determination of what is needed in a stain and why certain stains do not work, (3) establishment of stains on a scientific basis. *(1)*

To date the following stains have been put on a certification basis by the Commission:

Anilin blue, water soluble	Fast green FCF	Neutral red
Azure A	Fuchsin, acid	Nile blue A
Azure C	Fuchsin, basic	Nigrosin
Azure Erie garnet	Gentian violet	Orange G
Bismarck brown Y	Hematoxylin	Orange II
Brilliant cresyl blue	Hematein	Phloxine
Brilliant green	Indigo carmin	Pyronin
Carmin	Janus green B	Rose Bengal
Congo red	Jenner's stain	Safranin O
Cresyl violet	Light green, S.F., yellowish	Sudan III
Crystal violet	Malachite green	Sudan IV
Eosin, alcohol soluble	Martius yellow	Tetrachrome stain (MacNeal)
Eosin, bluish	Methyl green	Thionin
Eosin, yellowish	Methyl orange	Thionin eosinate mixture
Erie garnet B	Methyl violet	Toluidine blue
Erythrosin	Methylene blue	Wright's stain
Ethyl eosin	Methylene violet	

Certification on one or more of the above stains has been issued to each of the following manufacturers and standardizers of biological stains: Coleman and Bell (all), Difco Laboratories (bacteriological media), Hartman-Leddon Co. (nearly all), MacAndrews and Forbes (Hematoxylin and Brazalin), National Aniline and Chemical Co. (all). The methods for the standardization of biological stains have been discussed by Peterson, Conn and Melin (*2*).

In the present TAPPI standard method for Fiber Composition of Paper (*3*) only a few of these stains are used, but in a majority of these no adequate specification is given. For instance, there are a number of basic fuchsins on the market, apparently differing in the proportion of rosanilin and pararosanilin (the two main constituents of basic fuchsins). The dye is marketed usually as the chloride or the acetate. The Commission has found, in the case of certain biological stain tests which present problems, that the differences in basic fuchsins appear to be more a matter of impurities than the above differences (*1*). However, in the case of fiber differentiation with basic fuchsin it is doubtful if any of the fiber analysts have bothered about any of these differences.

Krauss[2] has also suggested "that certified stains would be of importance to mills manufacturing deeply colored papers, because they would be useful in checking the relative affinity of the dyes for the fibers used, as well as the deportment of their alum-size-precipitates when thrown down at beater concentration."

The Microscopic Sub-Committee would like to see the Technical Association go on record as endorsing the work of the Biological Stain Commission and in addition provide means for co-operation in such parts of the Commission's research program as may be of importance to the Association.

In addition to this it would be advisable in the future work on fiber differentiation stains to use a standard stain, if there is one, as others trying out the stain can obtain the same batch of dye and in this way place the research on fiber stains on a more logical basis. If a stain is being used which has not been standardized it is suggested that a sufficient quantity be obtained so that it will be possible to supply other research workers with the same lot of dye.

The writer wishes to acknowledge the fact that the importance of standardization of stains for fiber differentiation was called to his attention by E. M. Chamot.

The writer also wishes to acknowledge the reports of the following members of the Microscopic Sub-Committee: G. J. Griffin, M. L. Rollins, T. C. Bentzen, K. P. Geohegan, M. S. Kantrowitz, J. M. Krauss, W. Landes, C. E. Libby, R. W. McKinley, J. W. Perry, C. E. Peterson, R. H. Simmons and G. K. Spence.

Literature Cited

(1) Conn, Stain Technology, 7: 1 (1932).
(2) Peterson, Conn and Melin, Stain Technology, 8: 87, 95, 121 (1933); 9: 41, 147 (1934).
(3) TAPPI Standard T 401 m.

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.

[1] Member TAPPI, Chairman Microscopical Sub-Committee of the TAPPI Paper Testing Committee, Cornell University, Ithaca, N. Y.

[2] Private communication.

The "Stock-Maker" Precision Laboratory Beater*

By C. W. Morden[1] and George H. McGregor[2]

Abstract

A new development in laboratory beating since the time of the last New York meeting of the Technical Association is the adaptation of the Stock-Maker continuous batch method of beating to this type of work.

The purpose of this report is to briefly describe the beater itself and to comment on the results that have been obtained with it to date.

The beater used in this work was exhibited at the fall meeting of TAPPI in Portland, Ore. last year and has since been in operation in the laboratory of the Pulp Division of the Weyerhaeuser Timber Company at Longview, Wash.

Description of Beater

The beater unit, as exhibited at the Portland TAPPI meeting is shown in Fig. 1. This unit is equipped with an automatic charger for introducing the batches of stock into the beater. The charger is shown on the right in the illustration, and the beater itself on the left. In this complete unit the time of treatment per batch may be set on the time clock that is shown in the illustration mounted on the front side of the beater. When a batch of stock has been treated the machine then automatically introduces the next batch of stock and displaces the treated batch. The machine, when operated in this way, however, is intended more for pilot plant work and for continuous operation.

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.

[1] Member TAPPI, President, Morden Machine Company, Portland, Ore.

[2] Member TAPPI, Research Chemist, Pulp Div., Weyerhaeuser Timber Company, Longview, Wash.

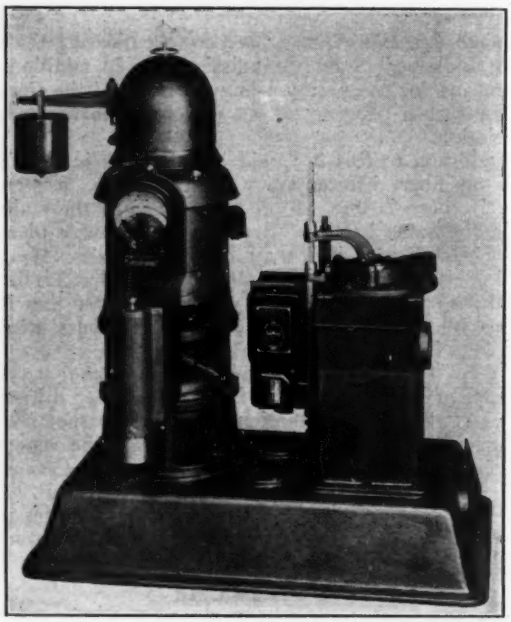

FIG. 1

Stock-maker pulp testing beater with automatic charging unit.

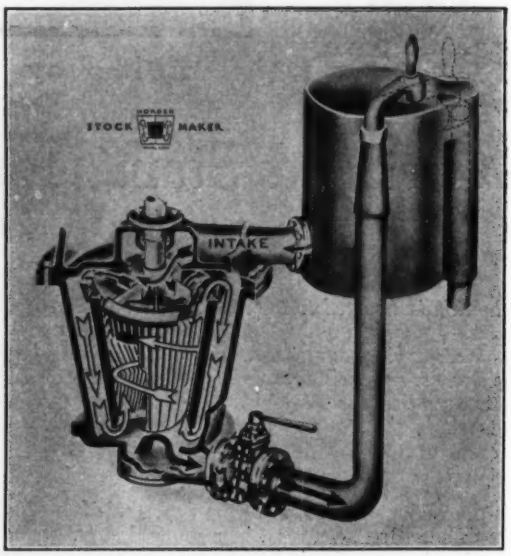

FIG. 2

Schematic illustration of dual type continuous circulation hook up used in laboratory beating of hand sheets.

When the unit is to be used as a laboratory beater the charger unit and the time clock controls are not used. With these parts eliminated, the machine consists of only the beater unit itself, shown on the left in the illustration. This unit is mounted on a small base and is so arranged that the stock may be treated in successive small batches or the complete batch of stock for a given run may be put into the machine and recirculated during its treatment in such a way that test sheet samples may be drawn off at intervals as the beating progresses. For laboratory work this is the simplest and quickest procedure. To illustrate this arrangement Fig. 2 will serve. This shows the treating element in one of the commercial size beaters with a charger tank and circulating pipe added to it. This will outline the general type of hookup used when operating the laboratory beater with the type of operation herein referred to as the dual type continuous circulation treatment. In the laboratory beater, however, the details of the arrangement are slightly different than that shown in the illustration.

The beater is equipped with a two horse power, vertical type, hollow shaft motor, the motor being mounted above the treating element in the same way as in the commercial sizes of this beater. This unit is built as a precision type machine throughout. In some minor respects it is changed in its construction details as compared with the commercial units, but these changes do not affect the method of treating the stock, which remains the same as in the larger size beaters of this type. The chief change in the mechanical arrangement of the laboratory beater is that the motor has a hollow shaft through which the rotor shaft of the beater extends. The upper end of this rotor shaft, inside the bonnet above the motor, is equipped with an annular type thrust bearing and with a specia

type of connection to the motor shaft itself, which make it possible to readily raise or lower the beater's rotor so that the spacing between the bars of the treating element may be very accurately controlled. This construction also permits either setting the rotor with a definite clearance between its bars and those of its bedplate shell or the rotor may be floated in its running position and weighted by placing weights on the weight arm which can be seen in the illustration extending out to the left from the bonnet on top of the motor.

Measurement of Bar Clearance

The setting of the beaters rotor is measured by a micrometer mounted on the top of the bonnet above the motor, with its operating pin in contact with the upper end of the rotor shaft. This micrometer permits setting the clearance between the bars of the treating element to fractions of a thousandth of an inch. This may seem an excessive degree of refinement but the tests with this unit have demonstrated that this is an important factor in the results obtained and one that bears an interesting relationship to beater room practice and the proper treatment of various pulps for best results.

Two Types of Operation

With this laboratory unit two distinct ways of handling the stock are available. One is the continuous batching type operation similar to that in the commercial beaters of this type, while the other is a dual type continuous circulation treatment in which the entire amount of stock to be treated is put in the machine at one time and all of it is recirculated during its period of treatment. In this dual circulation the main body of the stock, in the course of its circulation, travels through the interior of the machine, then through outlet piping from the machine's outlet up into its charging hopper and thence back into the machine. This outlet piping does not show in Fig. 1. While this circulation is taking place the treating element itself, inside the machine, is drawing off stock from the main body of stock that is in circulation, treating it and then returning it back into the main circulation. See Fig. 2.

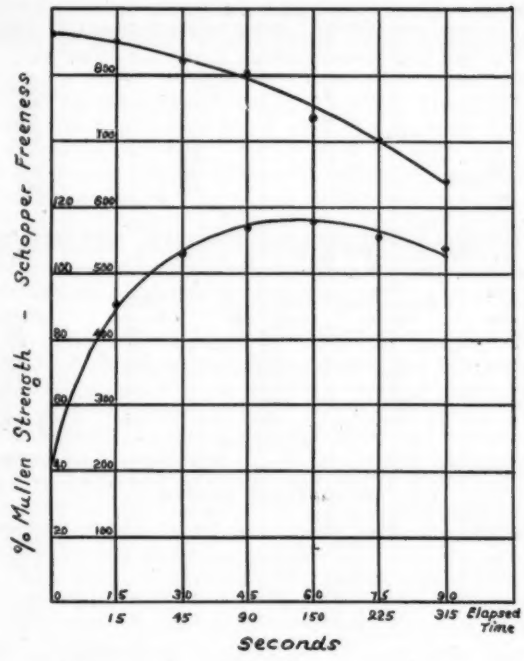

FIG. 4
Bursting strength and freeness batch treatment "Stock-Maker" laboratory beater.

For laboratory work this dual type continuous circulation treatment has proven to have advantages in terms of convenience in handling and in terms of the time required for treatment and the results on the stock have been

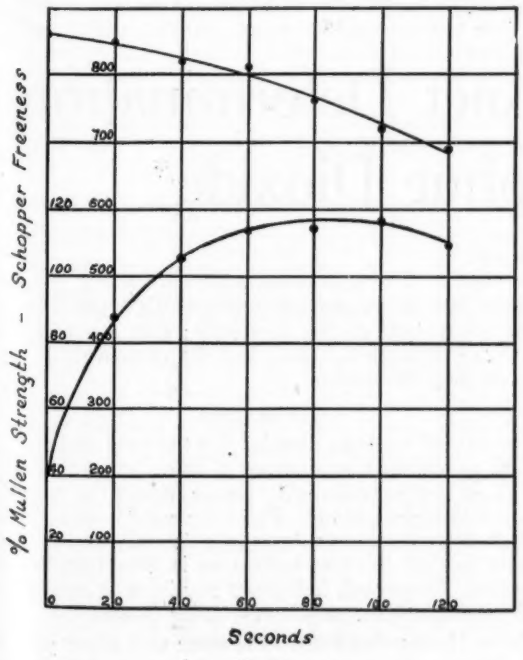

FIG. 3
Bursting strength and freeness dual-type circulation treatment "Stock-Maker" laboratory beater.

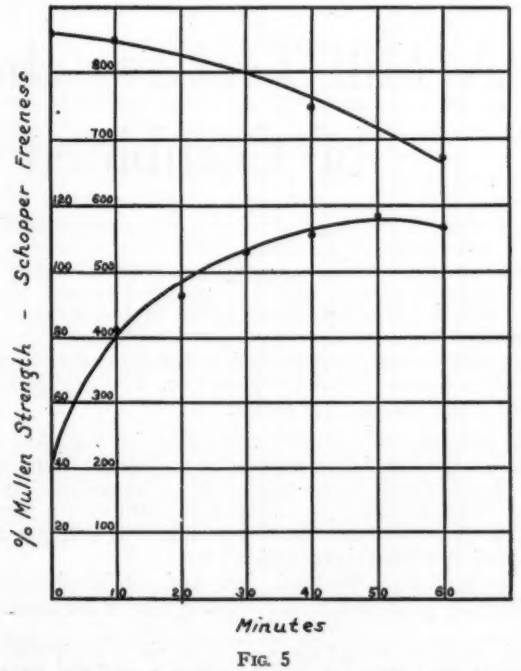

FIG. 5
Bursting strength and freeness tub-type 1½ pound laboratory beater.

TABLE I

DUAL TYPE CONTINUOUS CIRCULATION BEATING TREATMENT STRENGTH ON UNBLEACHED HEMLOCK SULPHITE USING THE STOCK-MAKER LABORATORY BEATER

Beating Time Seconds	Basis Weight 24x36—480	Mullen Per cent	Freeness
0	38	40	860
20	38	88	850
40	37	105	820
60	40	113	810
80	38	114	760
100	38	116	720
120	40.5	109	690

TABLE II

CONTINUOUS BATCH TREATMENT BEATING STRENGTH TEST ON UNBLEACHED HEMLOCK SULPHITE USING THE STOCK-MAKER LABORATORY BEATER

Beating Time Seconds	Total Elapsed Time Seconds	Basis Weight 24x36—480	Mullen Per cent	Freeness
0	0	38	40	860
15	15	39	91	850
30	45	40.5	106	820
45	90	40.5	113	800
60	150	38.5	116	730
75	225	38.0	111	700
90	315	43.0	108	640

TABLE III

BEATING STRENGTH TEST ON UNBLEACHED HEMLOCK SULPHITE USING THE 1¼-POUND TUB TYPE LABORATORY BEATER

Beating Time Minutes	Basis Weight 24x36—480	Mullen Per cent	Freeness
0	48.0	40	860
10	48.5	82	850
20	50.0	93	830
30	48.0	106	795
40	48.0	111	750
50	48.0	117	710
60	48.0	114	670

checked with those of the straight batch type operation and have been found to be, to all practical purposes, the same as shown by Figs. 3 and 4.

Results

Two things that stand out especially in the work that has been done to date with this unit are the extremely short time required to prepare the stock and the accuracy with which the strength and freeness development of the tub type laboratory beater equipment are duplicated. For example, in unbleached West Coast hemlock sulphite pulp which requires sixty minutes of treatment in the tub type laboratory beater, the "Stock-Maker" laboratory beater shortens the time required for treatment to only two minutes. Bursting strength and corresponding freeness values for the two types of treatment that are available with this type of beater, as compared with tub type laboratory beaters, are shown graphically in Figs. 3, 4, and 5, and in Tables I, II and III. Figs. 3 and 4 show the almost exact correspondence in results in the "Stock-Maker" laboratory beater for the two types of treatment that are employed in it,—Fig. 3 showing the dual type continuous circulation treatment and Fig. 4 the continuous batch treatment. For comparison with these Fig. 5 shows the burst values and corresponding freenesses as developed in the laboratory beater and it is to be noted that the maximum burst values and their corresponding freenesses are practically identical in all cases. The results as here reported are calculated in terms of 65 per cent relative humidity and 70 deg. F. Only a limited number of tear and fold tests corresponding to the maximum burst strength have thus far been run, but such tests as have been run indicate that these values are practically identical with those with the tub type beaters.

Definite Minimum Clearance

An interesting point these tests have developed is that in the tests with the "Stock-Maker" laboratory beater the bars were set so that a definite minimum clearance was maintained between them during the treatment. Thus there was no possibility of the bars coming into metal to metal contact. This points to a better sustained accuracy of the beater's bar faces over a given period of time as compared with a weighted floating type setting with which metal to metal contact may occur. This controlled type setting also corresponds to that in the commercial size beaters of this type, so in this, as well as in their other main features, the laboratory and commercial size beaters are similar and this certainly is quite desirable from the standpoint of relating laboratory and mill results.

Acknowledgment

Permission for the publication of this paper has been given by the Pulp Division of the Weyerhaeuser Timber Company, Longview, Wash., R. S. Hatch, Director of Research.

A Mill Test for the Exact Determination of Combined Sulphur Dioxide*

By G. V. Palmrose[1]

Abstract

A method, using potassium iodate in the presence of iodide ion, has been developed for determining the combined sulphur dioxide to within 0.01 per cent. A correction is made for reversible sulphur dioxide. The cost is about 10 per cent of the cost of iodine.

The present methods for determining the combined sulphur dioxide are fairly successful on liquors containing no lignin derivatives; on others they give misleading results. Their accuracy in all cases is too much a matter of luck. A method capable of a precision of 0.01 per cent combined has been developed.

In referring to the total, free and combined sulphur dioxide, mill practice is followed. The total is the dissolved sulphur dioxide, sulphurous acid and bisulphite; the combined is one-half of the bisulphite; and the free is the difference between the total and the combined, all calculated as sulphur dioxide.

The Problem

The use of separate samples for the total and the free, as well as the slow appearance of color in the titration of the weak sulphurous acid, causes errors in the time-honored Winkler method. Fig. 1 (curve I), obtained with a glass electrode, shows the reason for this slowness. The Sander method likewise suffers as is seen from the first inflection. In general, indicators require an abrupt change of 2 pH units for a satisfactory color change.

Curve II was obtained on the same acid after oxidation. The Höhn method accomplishes this oxidation, but it is difficult to keep the iodine at a fixed value (*2*). Since

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1934.
[1] Research Department, Weyerhaeuser Timber Co., Longview, Wash.

iodine forms an equivalent amount of hydriodic acid, any deviation is doubled in the combined. The writer has applied potassium iodate to solve the problem.

Hendrixson (*1*) has shown that the oxidation of sulphite with iodate is quantitative. The reaction may be considered as in equation 1. An excess of iodate liberates iodine, equation 2.

(1) $KIO_3 + 3H_2SO_3 = KI + 3H_2SO_4$

(2) $KIO_3 + 5KI + 3H_2SO_4 = 3K_2SO_4 + 3H_2O + 3I_2$

(3) $H_2SO_3 + I_2 + H_2O = 2HI + H_2SO_4$

According to Hendrixson (*1*), equation 1 is a time reaction and equation 3 is almost instantaneous. If an iodate solution is added to a sample of sulphite liquor, the slowness of reaction 1 is at once apparent and, particularly if the free is low, there is danger of over-running the end-point. The use of a small amount of potassium iodide largely overcomes this difficulty, allowing reaction 2 to take place.

As is evident from the equations, the amount of acid is not changed; the sulphuric acid and any hydriodic acid it may form are equivalent to the free. Miller and Swanson (*3*) have shown that in the caustic titration of liquors containing lignin derivatives part of the reversible sulphur dioxide is neutralized. A correction is made by acidifying with sulphurc acid and titrating the reversible with potassium iodate. The value so obtained is not all of the reversible, but only that part prolonging the caustic titration.

The Method

Results are commonly reported on the assumption that the sulphite liquor has a specific gravity of 1 and this practice is adhered to. More properly, the results are in grams per 100 cc. of the liquor.

To a 250-cc. erlenmeyer flask add 75 cc. of distilled water. Hard water should not be used as it will increase the combined. Condensed steam or soft water may be used but should first be compared with distilled water.

To the flask add 2 to 4 drops of methyl red indicator solution and 2 cc. of starch-potassium iodide solution. The solution should be orange or yellow at this point. Red indicates acid in the water or the starch-iodide solution. Pipette 2.00 cc. of the sample to the flask and titrate with N/8 potassium iodate solution. Avoid shaking the flask until color begins to appear. The per cent total is 0.2 times the cc. of N/8 potassium iodate.

If the sample contains no lignin derivatives, add one drop of N/8 (3 per cent) sodium thiosulphate solution to decolorize the blue of starch; if they are present, proceed with the caustic titration without decolorizing.

Titrate the contents of the flask with N/8 sodium hydroxide solution. Stop at the point at which one drop turns the solution an orange or yellow. The apparent per cent free is 0.2 times the cc. of N/8 sodium hydroxide. If the sample contains lignin derivatives, add 2 cc. of approximately 1 N sulphuric acid and again titrate with N/8 potassium iodate. That part of the free titration due to reversible sulphur dioxide is, for practical purposes, 0.1 times the cc. of N/8 potassium iodate. This is subtracted from the apparent per cent free for the correct value. The combined is obtained by difference.

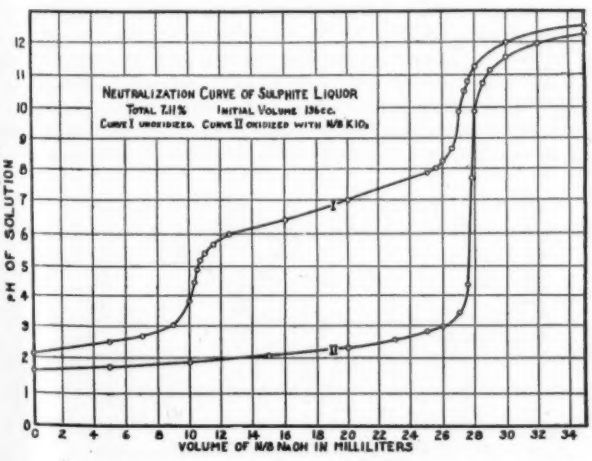

FIG. 1.

Titration of 2.00 cc. Clear Storage Liquor.

The Solutions

The N/8 potassium iodate solution may be conveniently diluted from 1 N stock solution containing about 36 grams of potassium iodate per liter. Standardize against a sodium thiosulphate solution, pipetting 25.00 cc. of the solution into a flask containing 100 cc. of distilled water, 10 cc. of 1.8 molal potassium iodide solution and a moderate excess of sulphuric acid (5 cc. of 1 N), titrating the liberated iodine. Adjust to 0.1250 normal. It is advisable to run a blank on the potassium iodide.

The N/8 sodium hydroxide solution should be prepared free of carbonates and may be standardized with sulphuric or hydrochloric acid, using methyl red as indicator. Adjust to 0.1250 normal.

Methyl red indicator solution is prepared by dissolving 1 gram of the solid in 1 liter of 95 per cent alcohol. For the starch-iodide solution, use 1 per cent starch solution containing 1 per cent of potassium iodide, free of potassium iodate.

If in doubt about the stoichiometrical equivalency of the solutions, they may be conveniently checked against each other by means of a 5 per cent sulphur dioxide solution. Place about 100 cc. in a small bottle; pipette a 2.00 cc. sample and determine the total and free. The latter will exceed the total due to sulphuric acid. Now apply suction to the bottle and allow some of the gas to boil off. Again determine the total and free. If the difference remains the same, the solutions must be equivalent.

The Advantages

The cost of potassium iodate is about 10 per cent of the cost of iodine; for, although iodine costs less per pound, potassium iodate has six times its oxidizing power and no potassium iodide is required in preparation.

Potassium iodate cannot be used for hot tests without the addition of a little sulphuric acid. Neither does the method work well towards the end of the cook. However, six months of practical trial, on liquors with a moderate amount of lignin derivatives, two of which have been in the digester building, show that the test repeatedly checks the combined as determined from the lime content of the liquor. Moreover, the shift chemists are able to get the same figures as the cook's helpers, usually agreeing to the last place.

Acknowledgment

The writer is indebted to the management of the Pulp Division, Weyerhaeuser Timber Company, for the interest shown in attempts to improve acid testing methods, especially R. S. Hatch, W. N. Kelly and the late R. B. Hansen.

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(2) Mahin, E. G., Quantitative Analysis, 3rd Ed., p. 233. McGraw-Hill Book Company, Inc., New York.
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The Influence of the Head Box and Slice on Sheet Formation*

By George D. Bearce[1]

Abstract

A review of the principles and patents related to the control of paper sheet formation.

The following basic principles of sheet formation are discussed:

(1) The maintenance of a homogeneous and uniform distribution and dispersion of fibers in the head box is the primary step in forming a sheet.

(2) The uniform delivery of the fiber suspension onto the wire is the second important step and

(3) The contact of the fiber suspension with the wire is the third and most important step.

The problem of sheet formation has been, and still is, in a large majority of paper mills, considered an "art" rather than an "exact science". Although the many factors involved in the initial deposition of the "mat" or "web" of fibers on the wire have been analyzed on a practical and semi-scientific basis, there is still an obvious lack of fundamental information available.

The development of better methods for the treatment, measurement and control of the various pulps and other materials used in making paper has resulted in a definite improvement of what may be termed the first step in the control of sheet formation. It will be assumed that such characteristics as freeness, consistency, temperatures and similar factors involved in preparation, are reasonably well controlled or compensated for before the stock enters the head box. It is well recognized that a properly prepared stock for any grade of paper might be poorly handled on the machine and produce an inferior sheet, while on the other hand, proper machine manipulation of an inferior stock would result in fairly good formation.

The object of this report is to correlate available data that relates to the operations from the screens to the wire and the effect on the resultant sheet with particular reference to the use of the high slice on coarse papers. The introduction of the adjustable lip slice on higher speed operations has developed a changed set of conditions relating to the delivery of stock on the wire. Since hydraulics, action of fibers suspended in liquid, surface tension and other physical as well as probably chemical conditions are involved in the problem, it is very complex.

Numerous types of head boxes have been designed with multiple passes, stream flow lines, baffles of various types, flow eveners and similar equipment to direct and steady the stock and to get more uniform delivery of the stock on the wire. Head boxes are usually designed to handle a certain volume of liquid. The compartments and baffles must be so arranged to permit a steady flow of stock, yet not allow dead areas in the head box. Corners and sharp angles are features of construction that should be avoided. Incidentally, many head boxes have been lined with copper, hard rubber, composition and other similar materials largely to reduce slime, lumps and other accumulations. However, such materials have but little influence on the action of the stock in the head box and its relationship to sheet formation with the possible exception of reducing friction.

Slice Design

There are three principal variations of the orifice or pressure flow type of slice used to introduce a uniform stream of stock and liquid onto the wire. The Voith inlet, the first high slice put on the market, controls the depth of the liquid by a hinged lip, the Van de Carr, widely used in the news field, uses the curved and flexible lip, while the most recent one, the Bell-Irving, is more of a nozzle type of opening than the other two. The Valentine and other high adjustable lip slices might be termed as modifications of one or more of the types given above, and all have particular features that have been developed by the makers of the equipment.

The Teale patented slice, Fig. 1, is an adjustable type suited to replace the old straight slice used on low and medium speeds and heads. In principle, it falls between the high head and straight slice since the slice bar is set at an angle and is adjustable in a similar manner to the flexible lip of the high head slices.

The flat bar type of slice is the one used on a majority of the older and slow running machines and serves the purpose where the stock velocities are low. This slice is usually in two sections to allow for lateral as well as vertical adjustments and has a chisel, rounded or square bottom edge. Some refinements to the conventional straight slices have been made. The Cape design uses two plates thinner than the regular slice bars which are placed together and adjusted with set screws and bolts, permitting a slight deflection of the bottom longitudinal line of the slice where needed to properly regulate the flow of stock under the slice. The use of two slices are common practice on some machines and certain grades of paper and the position of slice bars has been a much argued question for many years. The type and length of apron has also been discussed pro and con, although the consensus of opinion is that the apron should be as short as possible.

With the advent of higher speeds and heads of stock behind the slice, greater velocities developed. The stock was projected onto the wire, rather than allowed to flow, in order to maintain the proper relationship between stock velocities and wire speeds.

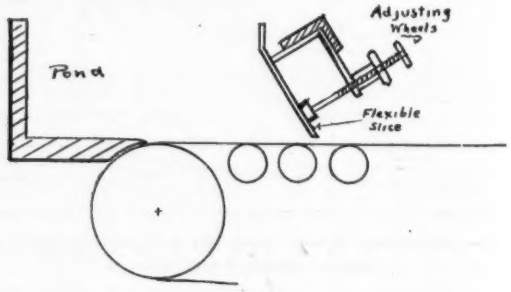

FIG. 1
Sketch of Teale slice.

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.

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The Voith type of slice with its hinged flexible lip and adjustable front plate might be termed a semi-nozzle type. The bottom part of the orifice is a horizontal metal apron and the upper part made of a flexible metal plate, equipped with a number of individual adjusting screws to level the sheet across the wire. The perforated stock distributing roll is installed with this type of slice to assist in more even distribution of stock to the slice.

The Van de Carr slice is slightly different in principle in that the lip is curved at the point where the stock is discharged from the slice opening. Theoretically, this curve should correspond to the stream flow movement of the liquid projected on the wire, maintaining a uniform and smooth flow of stock onto the wire. This slice is also equipped with individual adjusting screws to level the sheet across the wire, and the main front plate can be adjusted for any size of opening necessary for the weight of sheet being made.

The Bell-Irving type of slice is comparatively recent and is installed on a high speed newsprint machine. It might be termed as a full nozzle type with an upward sloping apron board forming the bottom of the slice and flexible top section with individual adjusting screws for sheet leveling. It also has an adjustment allowing for movement away from or nearer the breast roll. It is equipped with a series of baffles or rectifiers in the throat of the nozzle, and a series of pipes near the entrance of the nozzle for the introduction of white water into the stock at regulated rates.

All of these slices are in successful operation and their primary function is to deliver a sheet of liquid to the wire that is (1) uniform in thickness across the wire, (2) has a true directional flow with the movement of the wire, and (3) maintains an equal stock velocity in every part of the slice opening. Therefore, the problem of high slice operation is hydraulic in character, although other factors may influence the projection of the stock on the wire to some degree.

It is essential to have smooth and polished surfaces in contact with the high velocity stock and therefore chrome plated or other very smooth and non-corrosive metals are preferred in the latest type of slices. Friction variations or minute projections at vital points in the slice opening may easily disturb the flow of the high velocity stock and cause a distortion of the sheet on the wire.

Figs. 2, 3 and 4 illustrate the three mentioned types as well as the various features of head box design, which in many cases is almost an integral part of the slice assembly. There are also a number of other patents on slices and allied head box equipment. Among these are the flexible top apron (Bagley), the stock mixer roll in the head box (Aldrich), the adjustable hump in the apron (Hyde), the introduction of an electrical charge to prevent flocculation (Hazmburg), adjustable slice bars (Cape) and others.

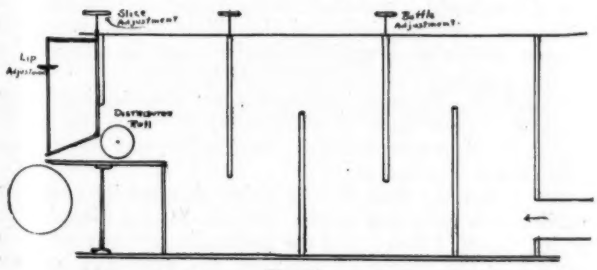


FIG. 2
Sketch of Voith type inlet and multiple pass headbox.

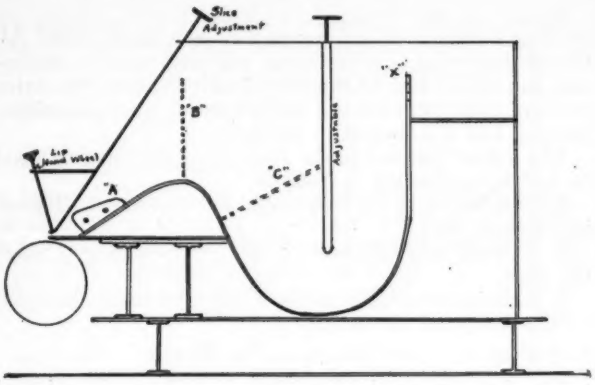
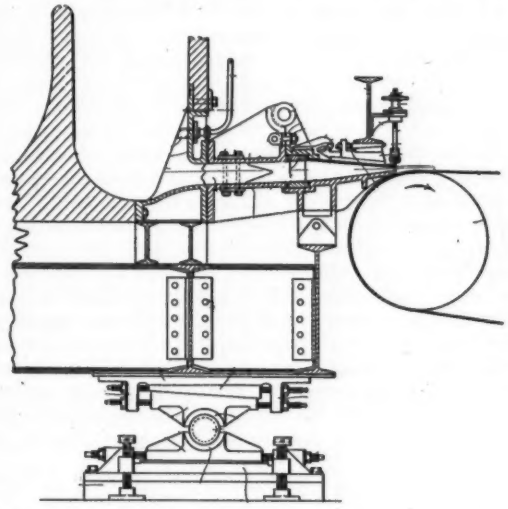


FIG. 3
Sketch of Van de Carr slice and single pass headbox.

Elements of Sheet Formation

The distribution and arrangement of the fibers and other paper making materials on the wire determine to a large degree the character of the formation of the finished sheet. This formation is usually judged by the uniform distribution and placement of fibers when examined under a strong light source, which in effect, is an ocular estimate of the relative refractive index in different parts of the sheet.

The development of a numerical method of testing and evaluating the sheet formation is greatly needed in the study of this problem. Much work has already been done by the paper testing committee and other organizations. A new instrument to measure formation has been devel-



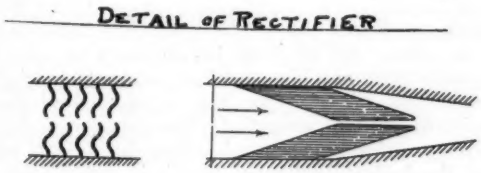


FIG. 4
Sketch of Bell-Irving or nozzle type slice.

oped and should be on the market in a short time. Although such tests as smoothness, porosity, opacity, absorption and others may be considered as indicators, the major problem is to evaluate the uniformity of fiber placement, position and distribution in the sheet.

The logical features in the analysis of the cause of good or bad formation are as follows:

1. Suspension of fiber particles and movement of stock in the head box.
2. Velocity and evenness of stock film passing through the slice.
3. Relationships between the velocity of stock, the speed of the wire, and formation.

1. Suspension and Movement of Fibers.

The function of the head box is to keep the mixture sufficiently agitated to prevent flocculation of the fibers and at the same time steady the flow of stock to get uniform delivery of the mixture at the slice. The two actions are diametrically opposed and the resultant balance is a compromise between the excessive turbulence of the mixture and uniform fiber distribution in the liquid. This is accomplished by inserting restricting baffles in the proper places in the head box, which will create turbulence and mixing at certain points. Increased velocity at certain points and reversal of flow will tend to keep the stock mixture uniform, and will not cause lump-forming if properly shaped baffles are used and the right material employed to secure a smooth and frictionless surface.

Mixing baffles of this description as close to the stock inlet as practical are beneficial, provided the shape of the head box immediately in front of the slice is such that the flow of the stock mixture is retarded at this point. In order to get a direct stream flow effect, the stock delivered from the screen to the head box should be steady and not violent. High screens and a cataract delivery may cause eddy and cross currents that will extend the entire length of the head box. A constricted area of the inlet of stock from the screens may produce a similar effect.

It is generally agreed that the number of passes in a head box should be held to a minimum in order to shorten the distance in which the stock mixture is being accelerated, consistent with the steady flow of the mixture. Fig. 2 illustrates a typical multiple pass head box, and Fig. 3 a single pass "camel hump" box used on a number of high speed news machines. It is customary to have adjustable baffles on any type of head box in order to regulate the flow of stock for the particular conditions under which the machine is operating. The dam "X" (Fig. 3) at the inlet of the stock from the screens is usually adjustable so that the height of the liquid may be regulated to maintain the proper stock flow to the first compartment of the head box.

In some head boxes, as illustrated in Fig. 3 at "B" and "C", secondary baffles, perforated plates, racks or other equipment may be installed to disperse the flocculated stock and maintain a uniform fiber distribution in the liquid. The flow evener ("A"-Fig. 3) which is made up of a series of parallel, thin metal plates about ½ to ¾ inch apart, helps to steady the flow of stock just before it goes under the slice. All of these impediments to stock flow are effective under specific conditions, although a minimum of contraptions of this type are to be desired from a standpoint of efficient operation. The primary problem in head box operation apparently involves the delicate adjustment of the hydraulic flow so that it is sufficiently rapid to prevent settling or a flocculent condition. At the same time, the forward movement of the liquid must be steadied so as to prevent cross flow, eddy currents and other similar movements that might distort the uniform delivery of stock to the wire.

Head Box Consistencies and Temperatures. In addition to the hydraulic principles, there is also the very important factor of head box consistencies, which of course, must be regulated before the stock goes to the wire, and any appreciable change in this factor may have a marked influence on the action of the stock in the liquid. There is evidently a wide divergence of ideas regarding the correct head box consistencies for any set of conditions for a particular grade of paper. The machine operator knows by experience that he must "put more water into the sheet" to improve it. The fundamental principles of this phase of forming the sheet are still lacking, and from necessity it must be left to the judgment of the papermaker. Consequently, it is a real "art" in putting the sheet of paper on the wire, particularly in the higher grades. The consistencies of stock in the head box range from about 0.1 per cent for light weight tissue to 0.8 or 0.9 per cent for some book papers. News on high speed machines is about 0.65 per cent, groundwood sheets between 0.3 per cent and 0.4 per cent, some medium weight sulphite bonds are approximately 0.50 per cent, sulphite waxings 0.3 to 0.4 per cent and the high grade writings about 0.75 per cent.

While the theory, that the lower the consistency the better the sheet, is generally accepted, there are other important machine and stock conditions that alter this principle. With the application of correct operating procedure and proper control, it is possible to form the wet sheet, on some grades of paper, with a shorter wire or to substantially speed up the machine and produce an equally good sheet of paper. This phase of wet end operation is one that deserves major consideration and analysis in the attempt to establish some fundamental principles of sheet formation.

Closely allied to the speed and uniformity of stock movement is the temperature in the head box and its effect on fiber suspension, interfacial surface tension of the liquid phase of dispersion, and stock movement. Since the viscosity of water changes with the temperature, it is necessary to alter stock preparation conditions to maintain a more uniform stock drainage action on the wire to compensate for such temperature changes. The difference between summer and winter operating conditions is well recognized by the papermaker. Last, and perhaps not the least important, is chemical and mechanical or physical condition of the dilute mixture and its bearing on stock flow to the slice, as well as its action on the wire. There is apparently a limited amount of data available on the above factors mentioned and their influence on fiber suspension, which is one of the controlling factors in sheet formation.

2. Velocity of Stock.

The high head slice presents a plain, yet complicated problem in hydraulics. Because of the shape of the orifice through which the liquid is discharged and the physical and other characteristics of the dilute stock, there are always one or more variables which must be allowed for in the application of any hydraulic formula.

The hydraulic principles and some theories regarding stock movement have been advanced as follows by A. M. Lund, in his paper entitled "Hydraulics and Paper Machine Sheet Formation." *(1):*

"If a flowing fluid at any point changes its course, a variation in pressure occurs vertical to the direction in which the fluid flows, and the hydraulic pressure which is caused by the change of direction, will gradually increase from the concave to the convex side of the curve. The velocity of the fluid at different points will vary in such

a manner that the highest velocity will be found where the hydraulic pressure caused by the change of direction is lowest. This is evident from the well-known formula for velocity and pressure-condition in flowing water.

$$H = h + v^2 (1 + k)$$

where H = static pressure
h = hydraulic pressure
v = velocity of water
g = gravity constant
k = friction coefficient

The formula for the pressure increase in a plane vertical to the waterway is

$$dh = 1 \frac{v^2}{g} \frac{dr}{r}$$

where r = the radius of the streamlines,
dr = distance between two points with difference in hydraulic pressure (dh).

In the case of the single slice the stock mixture near the point of the outlet makes a very sharp turn, and the radius for the streamlines is very short. Consequently the pressure increase under the slice due to the change in direction of the flow will be very great, as soon as a head of any consequence is carried back of the slice. This is evident from the formula for the pressure-increase, which is inversely proportionate to the radius r. It is also evident that increased velocity at the point of the outlet will increase the pressure very rapidly, as dh is proportionate to v^2.

With increased machine speed, which necessitated a higher and higher head behind the slice, the difference in speed between the top and bottom planes became so pronounced that the forming of a good sheet became more and more difficult. The necessity for a different type of inlet, which could give more uniform discharge velocities in different horizontal planes above the wire, resulted in the high pressure inlet shown in Fig. 5. In the high pressure inlet the stock mixture is gradually accelerated, and the static pressure transmitted into kinetic energy. The nozzle effect obtained by this type of inlet makes the radius of the streamlines much longer, and, if we again consider the formula for the pressure increase, permits much higher velocity (v) before the difficulty caused by too large a pressure increase (dh) occurs.

A weakness with this inlet is the difficulty in finding the proper position of the lip. As the concentration of fibers in the mixture varies from time to time, a new position of the lip must be found, in such a manner that the whirling currents under the lip, as shown in the sketch, will give the stock mixture the proper streamlines through the outlet.

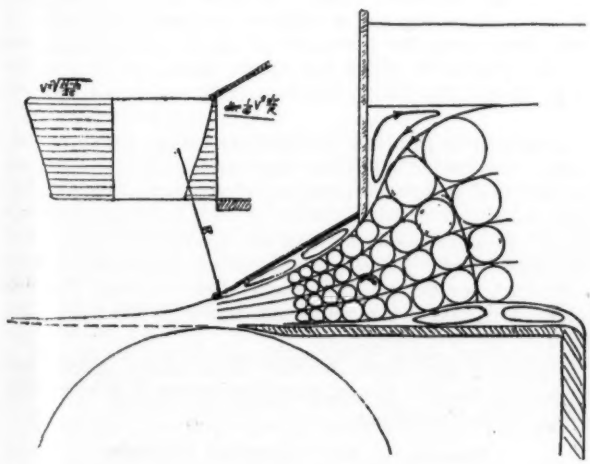


FIG. 5
High pressure inlet (Lund).

To illustrate the difference in speed in different planes above the wire let us take the following example.

Speed of machine—900 ft. per min. or 15 ft. per second
Opening of slice—1½ inches—0.125 foot
R_1—radius of streamlines at discharge point—14 inches
R_2—15.5 inches or 1.292 feet
H—static pressure
v—speed of wire
h—hydraulic pressure

It is well known that if the stock mixture on the surface of the sheet runs ahead of the wire, it will tend to distort the formation. Let us, therefore, consider the speed in the top plane the same as that of the wire.

Total increase in hydraulic pressure:

$$\left[\int_r dh = \frac{1}{G} v^2 \right] \left[\int_{r_1} \frac{dr}{r} \right]$$

$$h = \frac{1}{G} v^2 (\text{Ln}r_2 - \text{Ln}r_1)$$

$$= \frac{15^2}{32.2} (\text{Ln. } 1.292 - \text{Ln. } 1.167) = .7126 \text{ feet}$$

$$= 8.5 \text{ inches}$$

The hydraulic pressure prevailing immediately above the wire corresponds to a static pressure of 8.5 inches.

The theoretical head for the inlet is

$$H = 1.01 \frac{15^2}{64.4} = 3.52 \text{ feet} = 42 \text{ inches}$$

We get the velocity in a plane immediately above the wire from

$$H = h + 1.01 \frac{V^2}{2g}$$

$$V = \sqrt{\frac{(3.52 - 0.7126) + 64.4}{1.01}} = \sqrt{179}$$

$$= 13.4 \text{ feet per second}$$

The relative speed of the stock mixture in this plane to the wire is 1.6 feet per second.

3. STOCK VELOCITY AND FORMATION.

The relationship between the velocity of the stock leaving the slice and the speed of the wire is the most important factor in sheet formation. The action of any stock as it comes in contact with the wire might be described as the laying down of a large number of successive layers of fibers and furnish, each superimposed above the other, yet forming a composite or compact mass. The uniformity of sheet formation depends largely upon how these successive layers are deposited and the position and arrangement of the fiber and other particles, to get what the papermakers call a "level sheet on the wire." A good papermaker can usually judge this by the appearance of the stock as it comes down the wire and over the flat suction boxes.

The controlling factor of sheet formation is the "initial coating" of the stock on the wire or the theoretical fiber layer next to the wire. If the speed of the wire is less than the stock velocity, it is obvious that the stock will roll over on itself and result in a wavy formation across the sheet. The "initial coating" of fibers may be alternately on end, parallel to the wire or grouped together in unequal mass formation. Such a condition is easily observed by the operator.

When the speed of the wire is at or slightly greater than that of the stock, there is a tendency for the fibers to be drawn parallel to the wire direction and the initial set or coating of fibers on the wire is formed almost immediately as it strikes the wire. Theoretically the difference in speed between the wire and stock should be only sufficient to draw the fibers into a horizontal plane with

the wire surface and nearly parallel to the wire direction. If the "initial coat" or mat is uniform, the filtering medium thus formed will furnish a good foundation for the successive integral layers deposited to make up the sheet as it moves down the machine.

If the wire speeds are much in excess of the stock velocity leaving the slice, the "initial coating" will consist of upended and poorly arranged fibers, and such a poor filtering medium will generally produce a poor and wild sheet formation.

One mechanical method of influencing the "initial coat" is the forming board which retards to some degree the "initial set" of the fibers. Another factor that is of importance is the angle at which the stock comes in contact with the wire. The stock stream should strike the wire just over the center line of the breast roll to get smooth and horizontal delivery of fibers to the wire. The height of the apron board above the wire and the distance between the bottom lip of the slice and the center line of the breast roll are adjustments of importance to obtain satisfactory sheet formation. Many head boxes and slices are so constructed so that these two features may be adjusted to maintain the correct condition of the delivery of stock to the wire.

The physical characteristics of the stock, such as temperature, the chemical condition and other features that influence stock movement in the head box, are perhaps of as great importance in the formation of the sheet on the wire as their influence on fiber suspension in the head box. The type, volume, density and general characteristics of the returned white water plays an important part in the action of the fibers introduced upon the wire and is of more importance on certain grades of paper. While the pH value of the stock in the head box may be, in many instances, a good indicator of the action of the stock on the wire, it is probable that other chemical conditions not shown by this test may be of equal or greater importance in sheet formation.

Other Wet End Factors.

The forming of the sheet and its final character is also influenced to some degree by the position of the breast roll, wire pitch, forming boards, table rolls, baffles, shake, dandy, suction boxes, and other fourdrinier parts. Some of the most important of this equipment will be reviewed, but a complete analysis of their influence on sheet formation for medium and high speeds will not be attempted in this report.

Breast Roll. The position of the breast roll has been previously mentioned and is an important factor in the initial projection of the stock on the wire. The distance that the liquid is projected from the slice, on a horizontal plane, can be theoretically computed. This sheet of stock should come in contact with the moving wire at a point just beyond the center line of the breast roll in order to obtain a smooth flow. If the stream of stock strikes the uprunning face of the breast roll, the entire sheet is distorted, and if it lands on the wire too far beyond the breast roll, there is a tendency for the weight of the liquid to cause wire sagging, which disturbs the smoothness of stock flow. In practice, it is advisable to provide for vertical and horizontal adjustments on the breast roll or the head box so that the necessary changes in position can be made to obtain the best conditions of stock flow onto the wire for any specific grade and weight of paper. It is more essential where different grades and weights of paper at varying speeds are made on the same machine.

Pitch of the Wire. The flat versus the pitched wire on high speed news machines was the subject of much controversy a few years ago and is still a matter of opinion rather than fact. Newsprint is being made on flat wires at 1,000 to 1,200 feet per minute and also on wires pitched as high as 2½ to 3 feet at about the same speed. A pitch of 4 feet in an 80 foot wire has been tried out and pitches of 8 to 24 inches are often used on high speed paper machines making various grades of paper. The theory of the pitch is that it accelerates the top strata of the sheet of liquid on the wire by gravity, thus maintaining a more homogeneous and undisturbed condition of fiber and liquid as it moves down the machine. Since stock velocity and the form of the projected sheet from the slice have a great bearing on formation, it is probable that the pitch has only a secondary influence on the movement of stock.

Forming Boards. The initial drainage of stock as it strikes the wire is very rapid until a mat is formed. The function of the forming board is to retard this fast movement of water, the theory being that a slower setting of the initial layer of stock on the wire assists to improve formation. The forming board also helps to correct a condition of improper breast roll and slice position that creates a turbulent condition on the wire a foot or two below the slice.

Table Rolls. Much experimental work has been done on the materials (aluminum, brass, rubber covering, plated, etc.) used for table rolls. These rolls should be so designed that they run without deflection and be made of or surfaced with materials that will shed the water and not cause undue wear of the wire. The diameter and position of the table rolls, particularly near the slice, are of importance in forming the sheet. Suction table rolls are also a possibility in their adaption to the wet end.

Baffles. At the higher speeds there is a greater tendency for the water to follow around the table roll and be thrown back up against the wire, thus reducing the water removal ability of the table roll and sometimes disturbing the formation of the sheet in the making. The introduction of vertical or angle baffles between the table rolls and nearly touching the under side of the wire has proven to be of assistance to formation on some machines operating at the higher speeds.

Shake. The function of the shake is to realign the fibers in a horizontal plane with the wire as well as to keep them in movement for a longer period of time while a mat is being formed and as the water is pulled down through the sheet by gravity and the table rolls. With the right frequency and amplitude of the shake, the fibers will form into a more compact mass. The type of shake required will, to a large degree, depend on the speed, particle size and shape and the character of stock. In general, the strokes should be short for short fibered pulp, long for long fibered pulp, slow for slow pulp and rapid for free stock.

Dandy. The dandy is standard equipment on practically most Fourdrinier machines and serves to level the top surface and makes the sheet more compact. The development of the internal trunnion bearing on large diameter dandy rolls has made possible the successful operation of this type of equipment on newsprint at speeds of over 1,200 feet per minute. The dandy has a distinct function to perform and is an important factor in the final character of the wet sheet.

Suction Boxes. Since the sheet is virtually formed when it reaches the flat boxes, such equipment has very little effect on the formation.

Summary of Sheet Formation Principles

While it is recognized that there are many special conditions that influence the forming of the sheet and that the

discussion in this report is not exhaustive, the following basic principles are involved in the formation of the sheet on the fourdrinier wire at medium and high speeds.

1. The maintenance of a homogeneous and uniform fiber distribution and dispersion in the head box is the primary step in forming a sheet. The major features involved in this phase of the problem include the correct design of head box, size and shape of compartments, location and type of baffles, dams, etc., control of consistency, temperature furnish composition and chemical conditions.

2. The uniform delivery of the fiber suspension onto the wire is the secondary step in sheet formation. It is necessary to maintain equal velocity of the stock at all points where it leaves the slice, keep the sheet at the same thickness across the wire and have the movement of mixture across the sheet absolutely parallel to the travel of the wire. The use of equipment, such as flow eveners, distributors, etc. located at the intake of the slice opening, steady and assist in maintaining the proper directional stock flow through the slice. Since a minimum of disturbance to the colloidal suspension or mixture is essential to maintain uniform delivery from the slice, the hydraulic stream flow action should be recognized in slice design at all points from the intake to the lip. The use of non-frictional materials and the flexibility of adjustments to the slice are features of importance.

3. The vital point in the formation of the wet sheet is its delivery to and contact with the moving wire. If the mixture is projected onto the wire evenly and in a uniform manner, the wire speed should be slightly greater than the velocity of the stock at the point of contact. The further correct matting or forming of the wet sheet after the initial coat is deposited on the wire is influenced by such equipment as the shake, tube rolls, baffles, dandy, suction boxes and other wet end devices.

Acknowledgment

The author wishes to acknowledge the assistance received during the preparation of this report from M. H. Lund, M. M. Rubin, F. C. Clark, F. C. Ladd, B. T. McBain and other members of the TAPPI Paper Manufacture Committee.

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Operating Practice In Switching And Power Distribution In Pulp and Paper Mills*

By A. C. Bird[1]

Abstract

This paper is being offered as a brief summary to indicate the operating practice and power distribution schemes prevailing in pulp and paper mills erected within the last few years, in the United States and Canada. Operating practices are often influenced by local conditions and principles as established in that section, so that it is not feasible to lay down a hard and fast code.

Pulp and paper mills consume large blocks of electrical energy, which is usually delivered to the mill substation at high voltage and must be transformed to lower voltage for mill motors and lighting.

Voltage Determination

The usual voltages for motor distribution in this country are 440, 550 and 2200, three phase, a.c., while in Canada the predominant voltages appear to be 550 and 2200. In deciding the voltage ratings for the motors of a new mill, many questions must be answered before a final decision can be made. One accepted practice is to operate all motors below 50 or 75 h.p. at 440 or 550 volts and above 75 h.p. at 2200 volts.

In a large newsprint mill of 250 tons daily output with a connected motor horsepower of 10,000 exclusive of grinding, the motor sizes vary from 400 to 1 horsepower, with an average of 40 horsepower per motor. It can be readily seen that the dual voltage scheme might work out quite advantageously unless the following conditions are present:

(a) If the new mill is an extension to an old plant and all of the existing motors are 440 or 550 volts, it will not be possible to utilize or interchange spare equipment in the larger sizes.

(b) Many new mills, which use large quantities of steam for process purposes, have installed electric boilers where cheap power is available. For the boiler capacity required, these units generally operate at 6600 volts or higher which requires an additional voltage distribution, making the dual voltage motor scheme unwieldy. Grinder motors which are usually of 1200 or 2400 h.p. capacity can be readily purchased at these higher voltages.

(c) Because of the wet conditions prevailing about most paper mills, many plant operators feel that voltages above 600 should not be used from an insulation and safety standpoint. This opinion is quite justified, and applies mainly to old mills where new equipment has been added or the layout changed to such an extent that it has been impossible to maintain good operating conditions.

In the smaller electric power demand mills such as those manufacturing kraft or bleached sulphite pulp, where the installed motor capacity ranges from 4000 to 5000 h.p. and the average motor size is between 18 and 30 h.p. with a few large motors not exceeding 200 h.p. it is reasonable to assume that a single voltage distribution of 440 or 550 volts will be the most economical and desirable scheme.

For lighting purposes, 115 volts is generally accepted, using the standard 230/115 volt three wire system of distribution, obtained from stepdown transformer whose primary operates at the motor voltage.

Plant Layout

In a completely motorized pulp or paper mill, the power requirements range in the following order per department, as indicated in the table below, beginning with the largest demand first and the smallest last, and neglecting the boiler house. The examples given below are typical only and may extended to cover other types of mills.

	News Print Mill	
1. Grinder Room	1. Screen Room	1. Pulp Screening and Bleaching
2. Machine Room	2. Machine Room	2. Wood Preparing
3 Screen Room	3. Wood Preparing	3. Machine Room
4. Wood Preparing	4. Incinerator Plant	4. Acid Plant
5. Digester and Blow Pits	5. Evaporator Plant	5. Lime Storage & Bl. Liq. Bldg.
6. Acid Plant	5. Causticizing Plant	6. Digester House
7. Finishing Room	7. Digester House	

It is therefore essential that the substation be located as

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.

[1] Electrical Engineer, with Hardy S. Ferguson & Co., Consulting Engineers, New York City.

close to the large load centers as practicable to maintain short and economical feeder runs.

Since the electric power is usually received at high voltage, step-down transformers to medium voltage are required which are generally connected wye-delta. If the size permits, single phase units can be grouped in a bank and a spare carried for emergency use. Transformers are then used to step down from medium voltage to 440 or 550 volts for the motors. As these latter transformers are generally connected delta-delta it is possible to arrange the wiring with suitable disconnecting switches to operate on open delta in an emergency without maintaining a spare.

Where power is purchased from an outside source, to operate in parallel with mill generators whose capacity is below mill requirements, it is essential to install a suitable relay scheme to prevent overloading of the mill generators in case of fault on the purchased power system. This is sometimes accomplished by tripping out momentarily non-essential loads such as chippers, beaters, and jordans or any equipment which may have reserve process storage capacity. Power demand controllers are sometimes installed to reduce the load on motor-driven pulp wood grinders, beater motors, jordans, etc. to limit the "power demands" or "peak loads" when power is purchased and contracted for on a maximum demand basis.

The layout of the switching equipment in the substation depends entirely upon local conditions and to what extent the mill owner feels justified in spending money for refinement in operation and safety. Since this equipment is usually maintained and operated by men familiar with electrical equipment, 100 per cent fool-proof design may not be entirely justified.

If the layout permits, manually operated, 440, 550, or 2200 volt switching equipment can be economically used, preferably of the cubicle type. The ideal arrangement however calls for electrically operated remote controlled switching equipment segregated from the control room, for which the initial cost may be justified if the benefit of a more economical layout is obtained and control storage battery equipment is required for other purposes.

For the 6600 volt or higher switching equipment requiring cell mounting or equivalent, it is recommended that metal clad gear be used wherever possible. The cost of constructing suitable cells, barriers, busways, etc. will often exceed the cost of the completely erected metal clad switchgear as fabricated by a reputable manufacturer and be inferior to the latter from a safety and operating standpoint.

Motor Control

At the present time, the general practice for motor control in pulp and paper mills, as installed in recent mills in the United States and Canada, appears to be as follows:

(1) The following equipment is recommended for a high-class mill installation where cubicle type of control is not desired and suitable locations cannot be obtained:

(a) For motors 7.5 to 75 h.p. with full voltage starting:

Oil immersed, electrically operated contactor arranged for floor mounting with time lag overload trips with restraining devices and no-voltage release feature. Above the contactor is located a totally enclosed disconnecting switch, electrically interlocked with the contactor to ensure that the circuit cannot be broken by the disconnect, and also mechanically interlocked with the tank and the cover of the contactor so that the disconnect must be opened before the cover is removed or the tank lowered.

(b) For motors 50 h.p. or above with reduced voltage starting:

Oil immersed auto-transformer and change-over switch, equipped with time lag overload trips and no-voltage release, all arranged for floor mounting. Above the switch a safety type of disconnect is mounted with interlocking features as mentioned above.

It has been demonstrated that this equipment can be handled safely by inexperienced operators and is quite satisfactory for installing in the adverse conditions existing in the average paper mill. The initial cost of this type of control is high and many mill operators feel that they would rather replace the lower priced standard equipment from time to time as necessitated in pulp mill service, but it is the author's opinion that from a maintenance and safety standpoint, the additional first cost of the above is justified.

(2) There is an increasing tendency, especially on the Pacific Coast, to mount the motor control equipment in cubicles in groups, using remote control with push button stations at the motors. This arrangement has been amplified fully in previous papers of the Association and will not be discussed at this time. Standard air break contactors and oil circuit breakers can be used as the complete equipment can be located in the mill where good operating conditions exist. The author does not know how the cost of this equipment compares with the older type of construction involving the gutter box, safety switch and control, but he does believe that some initial increase in first cost, if it does exist, may be justified by the advantages gained.

Open wiring in pulp and paper mills is being gradually displaced by conduit wiring. In the earlier days when a good hot-dipped galvanized or sherardized conduit was not available, many conduit installations rusted out rapidly in the acid and moisture filled atmosphere existing in the mills. Experience and design of equipment have improved considerably these conditions and methods have been found to collect acid forming and wet air vapors, making conduit systems entirely feasible. Aluminum conduit was previously specified for the acid plant, digester and blow pit buildings but the difficulty in obtaining suitable fittings and increased cost, often made this refinement unjustified.

Thirty per cent para rubber, double braided cable for dry locations and varnished cambric, lead covered cable, all in conduit for wet locations and basement floors are recommended. For the higher voltages lead covered cable in conduit or armoured cables should be used.

In the choice of electrical equipment, care should be taken to select the proper materials to withstand the atmospheric conditions encountered. For example, the vapors in the sulphite plant will readily attack unpainted steel, while in the kraft mill, copper will be affected by the soda vapors.

Motors should be selected with insulation to withstand moisture and acid vapors and careful consideration given to the type of frame to suit local conditions.

Synchronous motors used on vacuum pumps or other equipment vital to continuous process work should be equipped with a field removal relay to permit the motor to automatically resynchronize if it falls out of step due to voltage dips or line surges.

A group of grinder motors may be started by one auto-transformer and a spare by proper wiring and switching equipment.

Wherever possible two distinct sources of power supply should be available for the fire pump motors as this equipment is a vital adjunct to pulp mills.

As every installation requires special study of local conditions and problems, the above matter is simply offered as a general review of some of the major points to be considered.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JANUARY 12, 1935

CIGARETTE PAPER

American Tobacco Co., American Banker, Havre, 200 cs.; De Manduit Paper Corp., American Banker, Havre, 160 cs.; American Tobacco Co., Liberty, Havre, 320 cs.; Standard Products Corp., Champlain, Havre, 81 cs.; Champagne Paper Corp., Champlain, Havre, 123 cs.

WALL PAPER

S. K. Lonegren, Minnequa, Copenhagen, 4cs.; S. K. Lonegren, Drottningholm, Gothenburg, 1c.; R. F. Downing & Co., New York, Hamburg, 1 bl.; ——, American Banker, Havre, 8 cs.; ——, Exporter, Pireaus, 4 cs., 1 bl.

NEWSPRINT

——, Washington, Hamburg, 205 rolls; Brooklyn Times, Kaaparen, Norrkoeping, 744 rolls; Gilman Paper Co., Kaaparen Norrkoeping, 276 rolls; Chase National Bank, Kaapren, Gothenburg, 312 rolls; Perkins Goodwin & Co., New York, Hamburg, 505 rolls; Walker Goulard Plehn Co., New York, Bremen, 130 bls.; Jay Madden Corp., New York, Bremen, 136 rolls; Parsons & Whittemore, Inc., Drottningholm, Gothenburg, 309 rolls.

PRINTING PAPER

Steiner Paper Corp., New York, Bremen, 3 cs.; L. A. Consmiller, Bremen, Bremen, 11 cs.

WRAPPING PAPER

Phoenix Shipping Co., New York, Hamburg, 3 rolls; D. E. Bordner, New York, Hamburg, 2 bls.; E. Dietzgen & Co., New York, Bremen, 64 cs.; ——, J. Jadot, Antwerp, 8 cs.

FILTER PAPER

J. Manheimer, Franconia, Liverpool, 90 bls.; H. Reeve Angel & Co., Inc., American Banker, London, 10 cs.

FILTER MASSE

H. Reifenberg, New York, Hamburg, 100 cs.

DRAWING PAPER

A. M. Schmidt & Co., New York, Bremen, 3 cs.

SURFACE COATED PAPER

Globe Shipping Co., New York, Bremen, 79 cs.

METAL COATED PAPER

K. Pauli Co., New York, Bremen, 11 cs.

PHOTO PAPER

J. J. Gavin, Majestic, Southampton, 4 cs.

BASIC PAPER

Dingelstedt & Co., New York, Bremen, 7 cs.

COATED PAPER

Chas. Happel, New York, Hamburg, 5 cs.

DECALCOMANIAS

L. A. Consmiller, New York, Hamburg, 5 cs.; Sellers Transportation Co., New York, Hamburg, 18 cs.; Sellers Transportation Co., Bremen, Bremen, 32 cs.; L. A. Consmiller, Bremen, Bremen, 2 cs.

TISSUE PAPER

Jay Madden Corp., New York, Hamburg, 126 bls.

COLORED PAPER

International F'd'g Co., New York, Hamburg, 11 cs.

TRANSFER PICTURES

Manhattan Decalcomania Co., New York, Bremen, 1 cs.; D. C. Andrews & Co., New York, Bremen, 4 cs.; Rohner Gehrig & Co., Bremen, Bremen, 12 cs.

WRITING PAPER

—, American Banker, Havre, 5 cs.

CARD BOARD

American Express Co., Washington, Hamburg, 90 cs.; American Express Co., New York, Hamburg, 35 cs.

MISCELLANEOUS PAPER

Keuffel & Esser Co., Washington, Hamburg, 8 cs.; Walker Goulard Plehn Co., Washington, Hamburg, 191 rolls; The Borregaard Co., Inc., Drottningholm, Gothenburg, 283 rolls, 34 bls.; Kraemer & Co., Drottningholm, Gothenburg, 203 bls.; Almo Trading Co., Champlain, Havre, 30 cs.; Japan Paper Co., Nora Maersk Kobe, 26 cs.; T. N. Fairbanks, Tokai Maru, Yokohama, 19 cs.

RAGS, BAGGINGS, ETC.

Castle & Overton, Inc., C. of Flint, Dundee, 167 bls paper stock; Darmstadt Scott & Courtney, C. of Flint, Dundee, 183 bls. paper stock; National City Bank, C. of Flint, Dundee, 285 bls. paper stock; J. Flannery, McKeesport, Havre, 35 bls. rags; Royal Manfg. Co., McKeesport, Dunkirk, 35 bls. cotton waste; ——, New York, Hamburg, 400 bls. cotton waste; ——,Transylvania, Glasgow, 100 bls. paper stock; Chase National Bank, Exchange, Barcelona, 135 bls. bagging; Darmstadt Scott & Courtney, Exchange, Genoa, 157 bls. rags; E. J. Keller Co., Inc., Ex-

calibur, ——, 471 bls. paper stock; ——, Andania Liverpool, 125 bls. pickers; New England Waste Co., Nora, Maersk, Shanghai, 125 bls. pickers; ——, Nora, Maersk, Kobe, 60 bls. rags; Mitsui & Co., Ltd., Tokai Maru, Osaka, 661 bls. cotton waste; 1st National Bank of Boston, Tokai Maru, Osaka, 365 bls. cotton waste; E. J. Keller Co., Inc., Northern, Prince, ——, 42 bls. paper stock.

HIDE GLUE

——, New York, Hamburg, 80 bags.

OLD ROPE

——, Kyno, Hull, 97 coils; ——, Excalibur, Marseilles, 97 coils.

WOOD PULP

Bulkley Dunton & Co., Minnequa, ——, 3625 bls. sulphite, 725 tons; Johaneson Wales & Sparre, Inc., Minnequa, Sundsvall, 5525 bls. sulphite, 1095 tons; Bank of Manhattan Co., Minnequa, Sundsvall, 780 bls. sulphate, 130 tons; Bank of Manhattan Co., Minnequa Hernosand, 1920 bls. sulphate, 320 tons; Bank of Manhattan Co., Minnequa, Hernosand, 4320 bls. sulphite, 720 tons; ——, Minnequa, Hernosand, 600 bls. sulphate, 100 tons; ——, Minnequa, Hernosand, 700 bls. sulphate, 100 tons; E. J. Keller Co., Inc., Washington, ——, 337 bls. wood pulp, 50 tons; M. Sone, Washington, Hamburg, 885 bls. wood pulp, 150 tons; M. Sone, Kaaparen, Gothenburg, 1000 bls. wood pulp; Castle & Overton, Inc., New York, Hamburg, 625 bls. wood pulp, 125 tons; J. Andersen & Co., Drottningholm, Gothenburg, 375 bls. sulphite; Perkins, Goodwin & Co., Drottningholm, Gothenburg, 374 bls. kraft pulp; Johaneson Wales & Sparre, Inc., Drottningholm, Gothenburg, 153 bls. sulphate; Gottesman & Co., Inc., Drottningholm, Gothenburg, 1560 bls. sulphate; M. Sone, Cliffwood, Helsingfors, 750 bls. wood pulp, 126 tons.

ALBANY IMPORTS

WEEK ENDING JANUARY 12, 1935

J. Andersen & Co., Anten, Sweden, 750 bls. sulphite, 127 tons; Gottesman & Co., Inc., Anten, Sweden, 2400 bls. sulphite, 406 tons; Gottesman & Co., Inc., Anten, Sweden, 2032 bls. sulphite, 406 tons; Perkins Goodwin & Co., Anten, Sweden, 2540 bls. kraft pulp, 508 tons; Bankers Trust Co., Anten, Sweden, 2500 bls. chemical pulp, 508 tons; Price & Pierce, Ltd., Anten, Sweden, 4200 bls. chemical pulp, 710 tons; Pagel, Horton & Co., Inc., Anten, Sweden, 14,400 bls. sulphite, 2440 tons; Perkins, Goodwin & Co., Anten, Sweden, 6120 bls. chemical pulp, 1016 tons; Bank of N. Y. Trust Co., Anten, Sweden, 12,000 bls. sulphate, 2032 tons.

BOSTON IMPORTS

WEEK ENDING JANUARY 12, 1935

J. W. Gerry Co., Tokai Maru, Yokohama, 2 cs. wall paper; M. Sone, Argosy, Helsingfors, 750 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JANUARY 12, 1935

M. Sone, Minnequa, Helsingfors, 300 bls. wood pulp, 50 tons; ——, Minnequa Stugsund, 750 bls. mechanical pulp, 125 tons; Johaneson Wales & Sparre, Inc., Minnequa, Sundsvall, 1300 bls. sulphite, 260 tons; Irving Trust Co., Minnequa, Sundsvall, 150 bls. mechanical pulp, 25 tons; ——, Minnequa, Sundsvall, 3000 bls. sulphite, 500 tons; Scott Paper Co., Minnequa, Sundsvall, 2250 bls. sulphite, 375 tons; Brown Bros., Harriman & Co., Minnequa Sundsvall, 300 bls. chemical pulp, 60 tons; Bank of Manhattan Co., Minnequa, Sundsvall, 360 bls. sulphate, 60 tons; ——, Minnequa, Sundsvall, 500 bls. sulphite, 100 tons; J. Wallworth & Son, C. of Flint, Dundee, 26 bls. paper stock; Castle & Overton, Inc., C. of Flint, Dundee, 74 bls. paper stock; ——, C. of Flint, Dundee, 27 bls. paper stock; Jay Madden Corp., C. of Flint, Hamburg, 25 bbls., 3 cs. tissue paper; M. Sone, C. of Flint, Hamburg, 400 bls. wood pulp, 63 tons; ——, C. of Flint, Hamburg, 208 bls. wood pulp, 31 tons; Chase National Bank, C. of Flint, London, 46 coils old rope; E. J. Keller Co., Inc., C. of Flint, ——, 317 bls. wood pulp, 50 tons; M. Sone, Kaaparen, Gothenburg, 1750 bls. wood pulp; Castle & Overton, Inc., McKeesport, Havre, 113 bls. rags; S. Shapiro & Co., Inc., McKeesport, Havre, 9 bls. rags; Castle & Overton, Inc., McKeesport, Dunkirk, 78 bls. rags; S. Shapiro & Co., Inc., McKeesport, Dunkirk, 135 bls. rags; Loumar Textile By Products Co., McKeesport, Dunkirk, 44 bls. rags; E. J. Keller Co., Inc., McKeesport, ——, 186 bls. rags; Castle & Overton, Inc., Paraguayo, B. Ayres, 31 bls. rags; ——, Takai Maru, Shanghai, 75 bls. cotton waste; N. Schwab & Son, Tokai Maru, Shanghai, 100 bls. cotton waste; Bulkley Dunton & Co., C. of Fairbury, ——, 550 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING JANUARY 12, 1935

Congoleum-Nairn Co., Liberty, Dunkirk, 127 bls. rags; Congoleum-Nairn Co., Exchange, Marseilles, 487 bls. rags.

NORFOLK IMPORTS

WEEK ENDING JANUARY 12, 1935

Darmstadt Scott & Courtney, Liberty, Dunkirk, 143 bls. bagging.

Bids and Awards for Government Papers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 16, 1935—The Government Printing Office has received the following bids for 5,000 pounds of 50 per cent rag buff index paper; all at 13.96 cents per pound; Walker-Goulard-Plehn Company, Whiting Paper Company, Old Dominion Paper Company, R. P. Andrews Paper Company, Mathers-Lamm Paper Company, and Barton, Duer & Koch Paper Company.

The Government Printing Office has announced the following paper awards:

The R. P. Andrews Paper Company will furnish 5,000 pounds of 50 per cent rag buff index at 13.96 cents per pound, bids for which were received on January 4. The Enterprise Paper Company will furnish 10,000 sheets of 22 x 28 gray photo mount board at $37 per M sheets, bids for which were received on December 28.

The R. P. Andrews Paper Company will furnish 3,800 pounds of 27 x 38 sulphite manila paper at $6.25 cents per pound, bids for which were received on December 19.

The Whitaker Paper Company will furnish 20,000 sheets of 29 x 37 white cloth lined cover paper at $118 per M sheets, bids for which were received on December 7

X-Ray Inspection of Alloy Castings

The Electro-Alloys Company, makers of thermalloy high temperature castings, Taylor street and Abbey Road, Elyria, Ohio, has just issued in pamphlet form a reprint of an article entitled "X-Ray Inspection of High Alloy Castings," by F. K. Ziegler and D. W. Bowland. Anyone interested in the use of nickel-chromium alloy castings may obtain a copy of this reprint gratis by writing to the company at the address mentioned.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, January 16, 1935.

Some improvement transpired in the local paper market during the past week. Demand for the various standard grades was slightly more active. Sales forces of the leading paper organizations generally anticipate gradual expansion of trading now that the holidays are over. Prices are steady and unchanged.

The newsprint paper market is exhibiting a stronger undertone. Production in the United States and Canada during December amounted to 319,321 tons and shipments to 341,020 tons, according to information gathered by the News Print Service Bureau. The total North American output for the month amounted to 345,535 tons.

Steadiness prevails in the fine paper market. Book, bond, ledger and cover papers are in satisfactory request for the time of year. Prices are firm. Tissues are moving freely. The coarse paper market is displaying strength and kraft specialties are in good demand. The paper board market continues steady.

Mechanical Pulp

The ground wood pulp market is practically marking time. Manufacturing operations in North America and abroad are practically keyed to consumption and the statistical position of the industry is considered sound. Stocks at the pulp mills are not excessive. Prices are holding to schedule, in most instances.

Chemical Pulp

Business in the chemical pulp market is fairly active. There are a number of inquiries for domestic and imported grades around, some of which should materialize into good orders. Offerings of kraft pulp are limited, with the result that quotations are firm. Other grades of chemical pulp are holding to schedule.

Old Rope and Bagging

The old rope market is steadier. Demand for domestic and imported old manila rope is better, while small mixed rope is moving in fairly good volume. Old rope prices are firm. The bagging market is more buoyant. Gunny and scrap bagging are firmer than of late. Roofing bagging is sharing the general improvement.

Rags

Sentiment in the domestic rag market is becoming more optimistic. Offerings of new cotton rags are rather scarce at present and prices are steady to firm. Export demand for No. 1 white shirt cuttings is fairly persistent. The imported rag market is still affected by fluctuations of foreign exchange. Prices are nominal.

Waste Paper

The higher grades of paper stock are quite firm, especially No. 1 hard white envelope cuttings and hard and soft white shavings. Book stock is arousing more interest. Board mill demand for the lower grades of waste paper is restricted. Since the conclusion of the emergency period quotations on strictly folded news and No. 1 mixed paper have been unsettled.

Twine

Trading in the local twine market fairly brisk and should improve gradually following the close of the inventory period. Supplies continue to move into consumption in good volume for the season. Despite the usual keen competition for desirable orders prices are generally holding to formerly quoted levels.

Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Production Ratios for the designated periods.

	Reporting Mills		Total Production
	Number	Capacity	Ratio
September, 1934	292–299	.....	59.4%
October, 1934	297–375	.....	64.7%
November, 1934	375–391	.....	61.0%
December, 1934	369–396	.....	62.4%
*Week ending December 8, 1934	384	153,895	61.1%
*Week ending December 15, 1934	396	165,778	65.5%
*Week ending December 22, 1934	386	161,175	65.9%
*Week ending December 29, 1934†	369	129,676	55.5%
*Week ending January 5, 1935	297	119,154	55.2%

Detailed statistics showing the number of mills reporting by ratio groups are given below:

	Number of Mills Reporting				
	Week ending				
	December 8,	December 15,	December 22,	December 29,	January 5,
Ratio Limits	1934	1934	1934	1934	1935
0% to 50%	156	146	148	175	163
51% to 100%	228	250	238	194	134

* Subject to revision.

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

September, 1934	62 per cent
October, 1934	63 per cent
November, 1934	56 per cent
December, 1934	53 per cent
December 8, 1934	56 per cent
December 15, 1934	57 per cent
December 22, 1934	63 per cent
†December 29, 1934	35 per cent
January 5, 1935	49 per cent

† Capacity and percentage data for week ending December 29, 1934 based on 5 days of 24 hours each.

Revised statistics covering delinquent mill returns will be shown in later reports.

Unusual Rains Cause Small Freshet

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 15, 1935—Unusual rains and warm weather conditions led to a small freshet in this section last week the waters in the Connecticut River rising to eight and three quarters feet above the crest of the dam. Fortunately a hard freeze followed lowering the water.

B. F. Perkins Heads Holyoke Fire Board

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 15, 1935—Benjamin F. Perkins of the Japane American Tissue Mills Inc., was elected chairman of the Holyoke Board of Fire Commissioners at their organization meeting last week.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, January 16, 1935.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. Contract shipments are moving with regularity. The price situation is practically unchanged. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is fairly active. Domestic standard ground is quoted at 10½ and finely ground at 11¼ cents per pound; while Argentine standard ground is selling at 13½ and finely ground at 14 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is fairly persistent. The contract movement is well up to average. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is displaying a fairly strong undertone. Prices remain unchanged. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—Conditions in the chlorine market are satisfactory. Shipments against contract are moving in good volume. Prices are steady. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market continues firm. Paper making gum rosin is quoted at $4.65 and FF wood rosin at $4.40 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.65 per 100 pounds, in tank cars, at works.

SALT CAKE.—Paper mill demand for salt cake is fairly brisk. Prices remain unchanged. Salt cake is quoted at from $12 to $13 and chrome salt cake at from $11 to $12 per ton, at works. Imported salt cake is selling at from $12 to $13 per ton, on dock.

SODA ASH.—The soda ash market is exhibiting strength. Contract shipments are moving freely. Prices are holding to schedule. Quotations on soda ash in car lots, at works, per 100 pounds, are as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—Business in the starch market is fairly satisfactory for the season. Prices remain steady and unchanged. Special paper making starch is quoted at $3.75 per 100 pounds, in bags; and at $3.84 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is more active than of late. Prices are holding to schedule. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near-by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market is along routine lines. Prices remain unchanged. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	42.50	@	—
Rolls, spot	42.50	@	—
Sheets	47.50	@	—
Kraft—			
No. 1 Domestic	4.75	@	5.00
No. 2 Domestic	3.87½	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	40.00	@	45.00
Chip	37.50	@	40.00
Sgl. Mla. Ll. Chip	47.50	@	52.50
Jute Lined Chip	47.50	@	52.00
White Patent Coated	60.00	@	65.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	21.00	@	22.00
Dry	21.00	@	22.00

(F.o.b. Mill)

No. 1 Domestic and Canadian	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—

(On Dock, Atlantic Ports)

Kraft No. 1	1.65	@	1.75
Kraft No. 2	1.50	@	1.60

(F.o.b. Pulp Mill)

Kraft Domestic	1.60	@	2.25

(Delivered)

Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.10	@	1.25
No. 2	.80	@	.85
No. 3	.70	@	.75
No. 4	.65	@	.70
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	1.60	@	1.70
New Mixed Cuttings	1.75	@	1.85
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.40	@	1.60
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.90	@	1.00
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.20	@	1.30
Wool Tares, heavy	1.20	@	1.30
Bright Bagging	1.15	@	1.25
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1	2.15	@	2.25
Hard White No. 2	1.95	@	2.05
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag.	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.20	@	1.30
Strictly Overissue	.65	@	.70
Strictly Folded	Nominal		
No. 1 Mixed Paper	Nominal		

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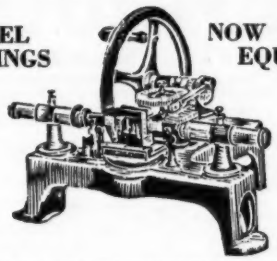

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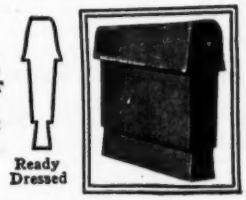

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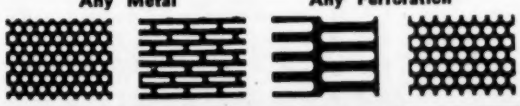

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Twines

(F. o. b. Mill)

Coarse Polished—			
India	.11¼	@	.13¼
Belg. White Hemp	.12¼	@	.15¼
India Compress	.11¼	@	.12¼
Fine Polished—			
Fine India	.16	@	.20

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.50
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.11
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¼
No. 2 S.&S.C. Book	.05¼	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¼
No. 1 Fibre	.04¼	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	43.50	@	—
Sheets, open	48.50	@	51.00
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.70	@	.80
Solid Books	.60	@	.70
Blanks	1.00	@	1.05
Kraffts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.30	@	.35
Mixed Papers—			
No. 1	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(Delivered Philadelphia)

Bonds	.05-9/10	@	.38
Ledgers	.06 9/10	@	.40
Writings—			
Fine No. 3	.05	@	.06
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Book, M. F.	.05¼	@	.06¼
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06½	@	.09
Coated Lithograph	.06¾	@	.08½
Label	.07	@	.11
No. 1 Jute Manila	6.25	@	—
Manila Sul., No. 1	5.25	@	—
Manila No. 2	3.00	@	—
No. 1 Kraft	5.00	@	—
Southern Kraft	4.75	@	—
Common Bogus	.03	@	.04½
News Print Rolls	42.50	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	$2.25	@	$4.23
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.66
Best Tarred, 3-ply	2.00	@	2.23

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01½	@	.02
Blue Overall	.03½	@	.04
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.01½	@	.03
Fancy	.01½	@	.03
New Black Soft	.02	@	.04
New Light Seconds	.01½	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.04
No. 2 Mixed	.03	@	.04
Corduroy	.02	@	.03
New Canvas	.03½	@	.04½
New Black Mixed	.02½	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.50
Miscellaneous	1.75	@	2.25
M. G.	3.00	@	3.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.50
Repacked	1.50	@	2.00
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.85

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.35
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.25	@	1.30
No. 1 Mixed	—	@	.75
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.00	@	1.10
No. 1 Books, heavy	.55	@	.60
No. 1 New Manila	1.35	@	1.40
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.00	@	—
No. 1 Mixed Paper	.20	@	—
Straw Board Chip	.20	@	—
Binders Board Chip	.20	@	—
Corrugated Board	.40	@	—
Overissue News	.50	@	—
Old Newspapers	.30	@	—

BOSTON

Paper

(F o. b. Mill)

Leagers—			
Sulphite	.04	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.07¼	@	.11
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¾
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.05
No. 2 Kraft	.03½	@	.04½
(F. o. b. Boston)			
Southern Kraft	.03½	@	.04½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print Rolls	42.00	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—		@40.00
Filled News Board	40.00		@45.00
Chip Board	37.50		@40.00
Chip Board (Creasing)	37.50		@40.00
Single Manila Lined Chip	47.50		@52.50
Single White, Patent Coated News Board (Bender)	55.00		@65.00
Wood Pulp Board	70.00		@75.00
Binder Boards (Standard Grade)	67.00		@75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.20
No. 1 Soft White	1.75	@	1.90
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.75	@	—
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.95	@	1.05
No. 1 Books, heavy	.50	@	.60
No. 1 Books, light	.55	@	.65
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.50	@	.55
White Blank News	1.20	@	1.25
No. 1 Kraft	.85	@	.95
No. 1 Mixed Papers	.20	@	.25
Print Manila	.40	@	.45
Overissue News	.45	@	.50
Old Newspapers	.30	@	.35
Box Board Chips	..	@	.25
Corrugated boxes	.25	@	.32½
Screening Wrappers	.45	@	.55

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	1.75	@	1.90
Domestic	1.90	@	2.00
Transmission Rope	.90	@	1.00
Mixed Strings	.17½	@	.30
Jute Rope	1.35	@	1.40
Jute Carpet Threads	.65	@	.70
Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.15	@	1.20
Bleachery Burlap	4.00	@	4.50
Scrap Burlap	1.05	@	1.10
Scrap Sisal	1.00	@	1.10
Scrap Sisal for Shredding	1.10	@	1.25
Wool Tares, heavy	1.25	@	1.30
New Burlap Cuttings	1.45	@	1.50
Australian Wool Pouches	2.00	@	2.25
Heavy Baling Bagging	1.40	@	1.50
Paper Mill Bagging	.90	@	1.10
Bagging No. 2	.50	@	.55

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01¾	@	.02
New White No. 1.	.05½	@	.06
New White No. 2.	.03½	@	.04
Silesias No. 1	.04	@	—
New Black Silesias	.02½	@	.03
New Unbleached	.05½	@	.06
Blue Cheviot	—	@	4.65
Fancy	.0185	@	.0195
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03¼	@	.03½
O. D. Khaki	.03	@	.03¼
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	—	@	.06¼

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	3.00
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Twos and Blues	1.25	@	1.50
Thirds and Blues			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Black Stockings	2.50	@	3.00
Roofing Stock			
No. 1	.85	@	.90
No. 2	.75	@	.80
No. 3	.60	@	.65

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.00	@	1.00
New White Shirt Cuttings	5.50	@	6.00
Dutch Blues	2.00	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.55	@	1.60
Old Linsey Garments	1.25	@	1.35

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¼	@	—
No. 2 Colored	.09	@	.10
Ledgers (sulphite),			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09¾
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	6.65	½	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.22½	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—

(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	42.00	@	—
Sheets	44.50	@	—

Pulp

(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	50.00	@	55.00
Sulphate	50.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.30
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.50
Printed Manilas	.70	@	.60
Kraft	1.25	@	1.50
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.60	@	—
No. 1 Mixed Paper	.50	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06	@	.06¼
Fancy Shirt Cuttings	.02¼	@	.02½

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PAPER TRADE JOURNAL

ESTABLISHED 1872

SIXTY-THIRD YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

Published Every Thursday by the LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President. J. BANNINGA, Sec.-Treas.

Published at 34 No. Crystal St., East Stroudsburg, Pa.
Executive and Editorial Offices: 15 West 47th Street, New York
Chicago Office: 123 West Madison St.

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An uncorked bottle pours easily and An unplugged Suction Roll drains freely

A plugged hole in a Suction Press Roll is like a corked bottle—water can't flow through the hole. And every plugged hole reduces the efficiency of the Suction Roll just that much.

That is why the new Tensilastic smooth, moulded-hole Suction Roll is doing such a good job. Unlike drilled holes, the sides of the moulded holes are smooth, consequently, they do not plug so readily. There are no ridges or rough spots for the clay in the white water to hang on to, and build up.

Pour water slowly down a smooth piece of rubber, then pour it down a rough piece and you'll see why the smooth moulded hole won't plug as readily as the rough drilled hole. There's a ripple to the water as it travels over the rough rubber.

Because the holes keep clean, there is a constant, complete drainage with the Tensilastic smooth hole Suction Roll. Drying is accomplished at a lower steam pressure, and a better finish, a stronger, quality sheet is the result—a sheet that will bring a better price. Shadow marks, crushes, cockles, felt marking and excessive broke are eliminated.

TENSILASTIC

*Smooth Moulded-Hole Suction Roll

And, this Tensilastic Suction Roll is easier on felts, assuring longer felt life and permitting the use of lighter, more closely woven felts.

And remember, this Suction Roll is Tensilastic, the super-compound that is amazingly resistant to wear and abuse, to oxidation, corrugation, distortion and deterioration.

Put a Tensilastic rubber covered Suction Press Roll in your machine. Give it a thorough test. Watch it, and note how freely it drains the water and how long it runs before there is a tendency to plug.

Tensilastic moulded-hole rubber covered Suction Rolls can be secured in any density—as hard or as soft as you wish. The moulding process isn't hindered by density.

If you are now using Suction Rolls, and the shell condition permits, we can recover them by this smooth moulded-hole process. Send them in.

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*U. S. Patent Pending. Canadian Patent No. 339,365

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